

Figure 1-3. Six Sub-Areas of Project

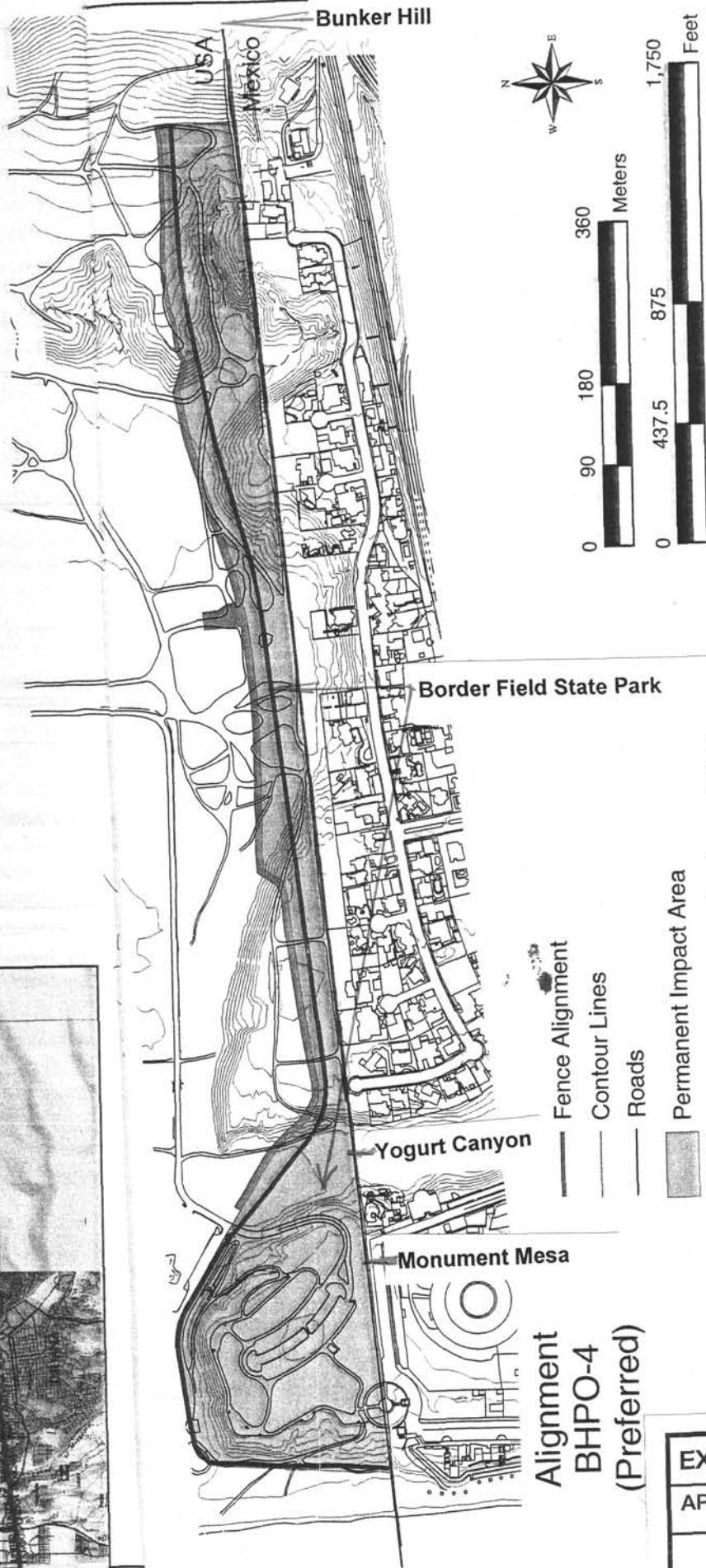
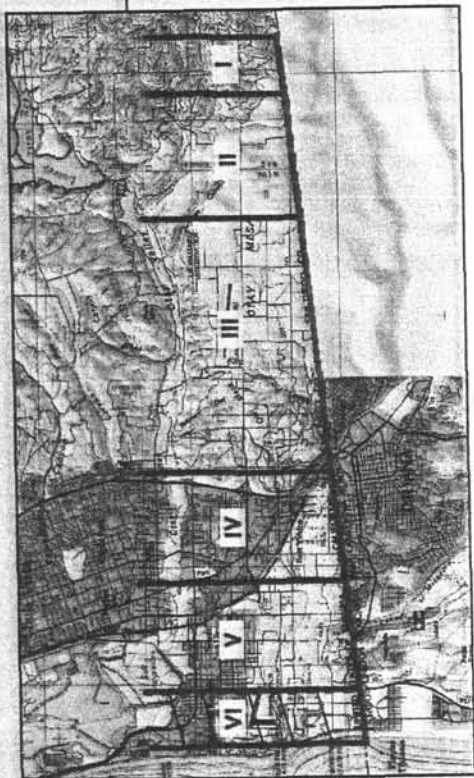


Figure 2-12. Area VI Alternate Alignment Footprints

**gsr**  
GEOGRAPHIC  
SYSTEMS  
CORPORATION

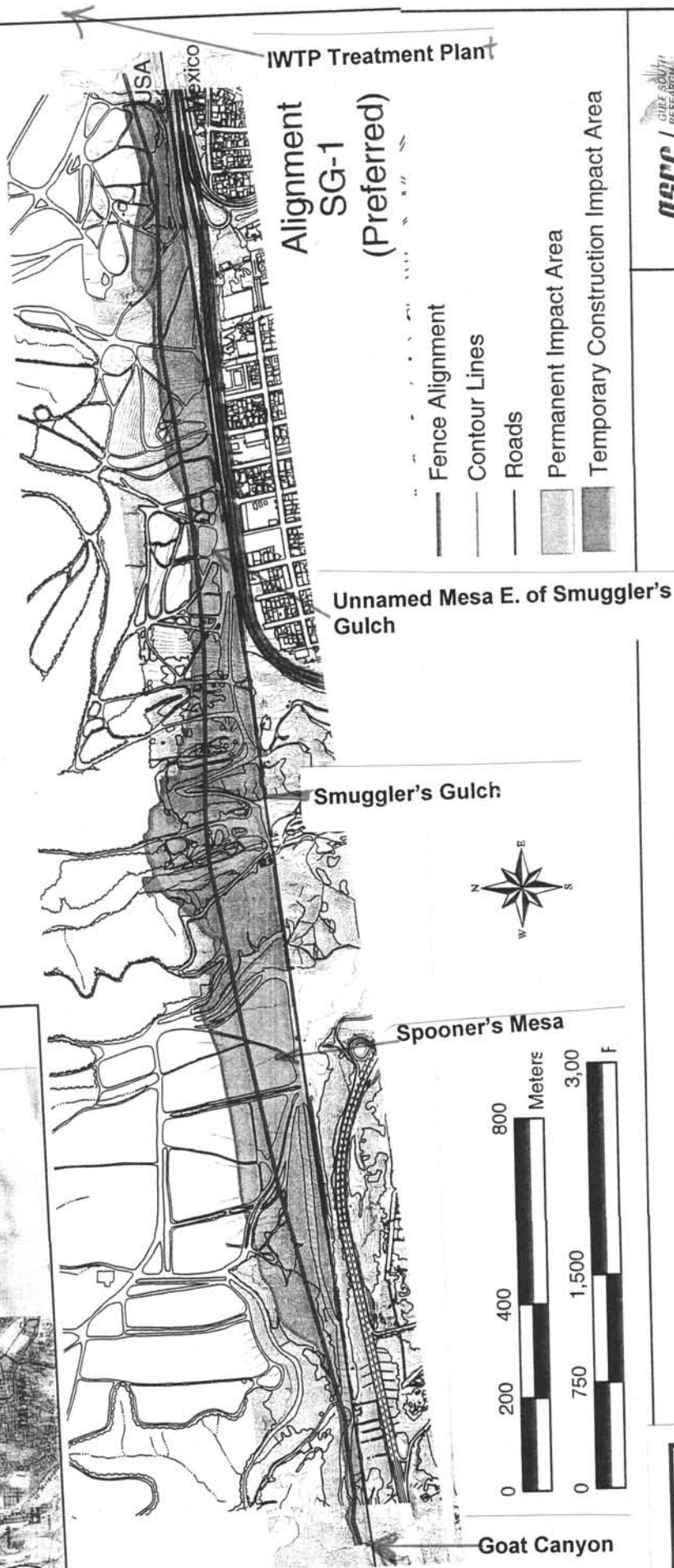
Date: July 2003

EXHIBIT NO. 2

APPLICATION NO.

CD-63-03

INS Area VI



**gsr** GILF SOUTH RESEARCH CORPORATION

Date: July 2003

Figure 2-8. Area V Alternate Alignment Footprint

EXHIBIT NO. 3
APPLICATION NO.
CD-63-03
INS - Area V



Figure 2-2. Typical Cross-section of Enforcement Platform

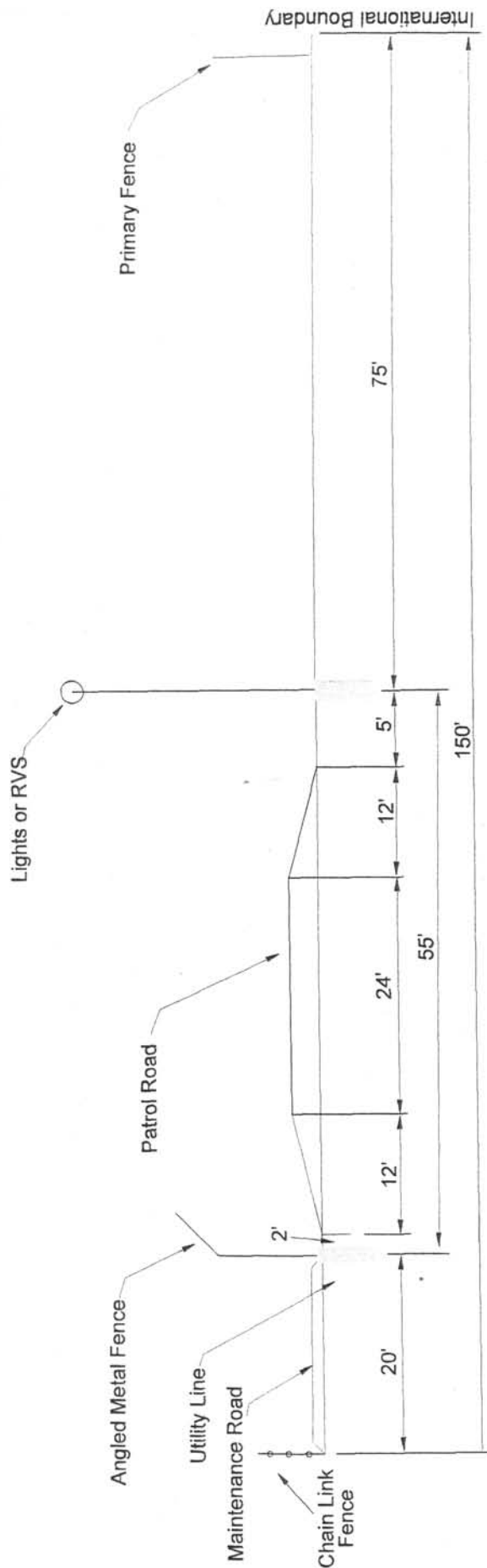


EXHIBIT NO. 4

APPLICATION NO.

CD-63-03

INS Cross  
Section



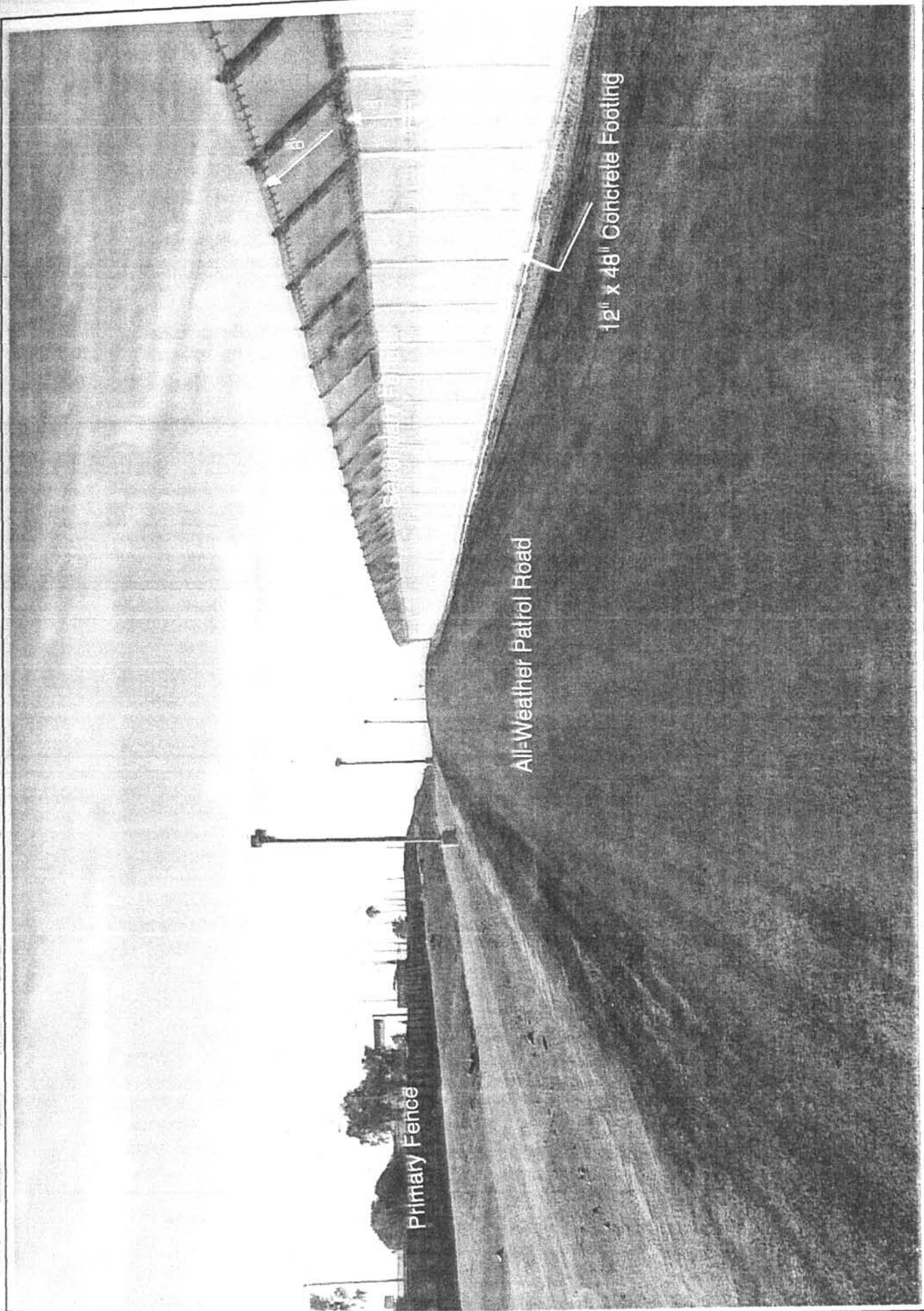
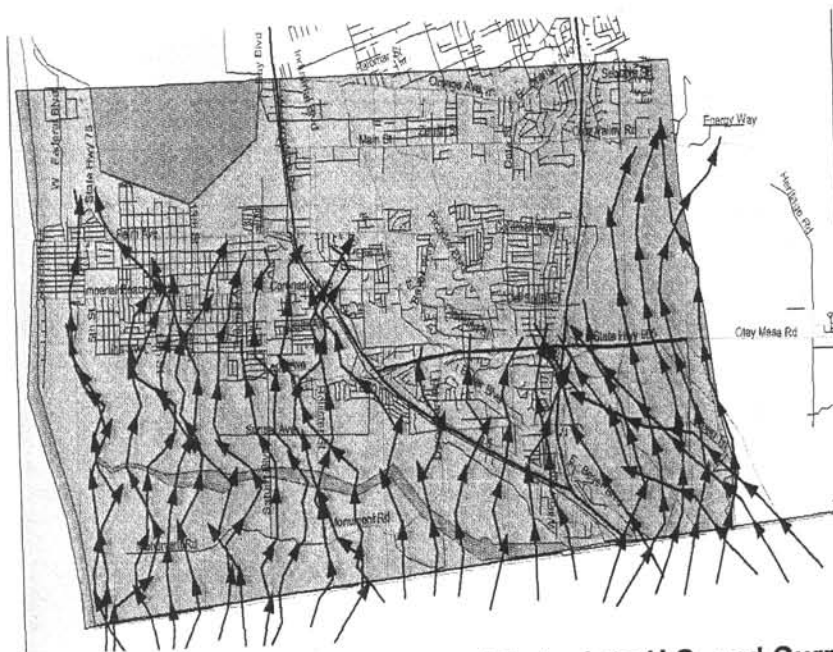


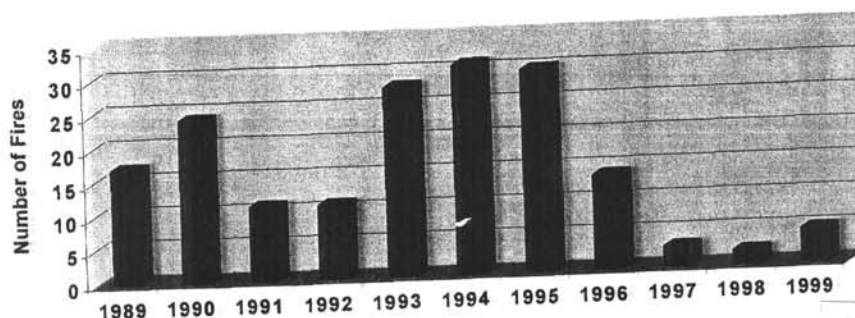
Figure 2-1. Photograph of Standard Design for Secondary Fence



**Figure 1-6. Primary Routes of Entry into U.S. and Current Enforcement Footprint**

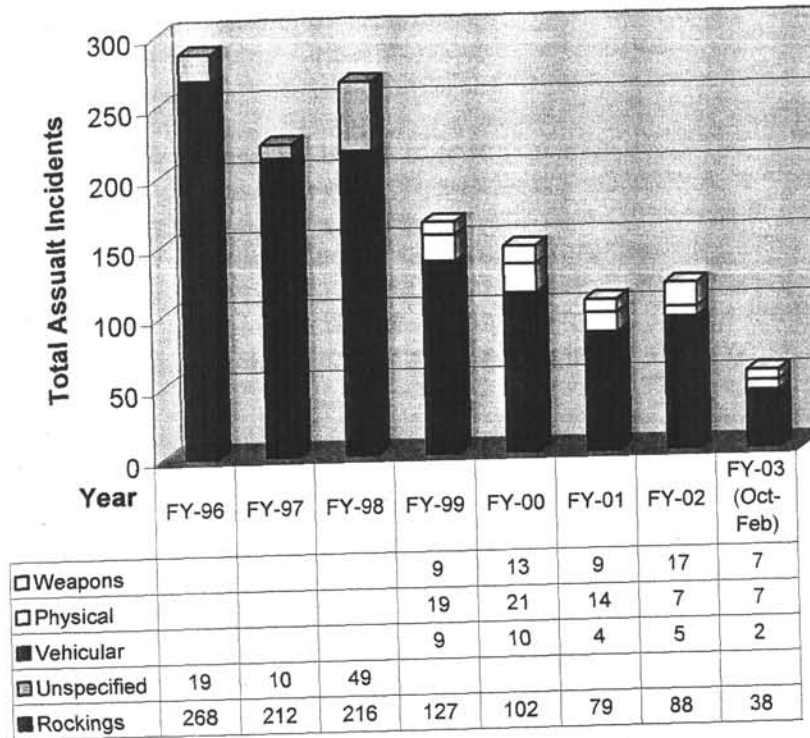
It is also significant to note that from 1989 to 1996 there was an average of 20 fires per year within the boundaries of the Tijuana Estuary, with the greatest number occurring between 1993 and 1995. This correlates directly to higher illegal traffic levels. Upon completion of the primary fence and implementation of Operation Gatekeeper, the frequency of fires also fell, as depicted in Figure 1-7.

The creation of a primary enforcement zone composed of a dedicated system of infrastructure (multi-tiered fencing, lighting, cameras, and an all-weather road) that closely, but at a safe distance, parallels the border, reduces the geographic footprint of the operation and the environmental impact. It further enhances control efforts and provides opportunities to balance the overall operation by mitigating intensive manpower requirements. It thereby increases flexibility in personnel deployment and maximizes the USBP's deterrent, proactive enforcement capability.



**Figure 1-7. Fires within the Tijuana Estuary (1989-1999)**

**Figure 1-5.**  
**San Diego Sector Assaults on Border Patrol Agents**  
**FY-96 - FY-03**



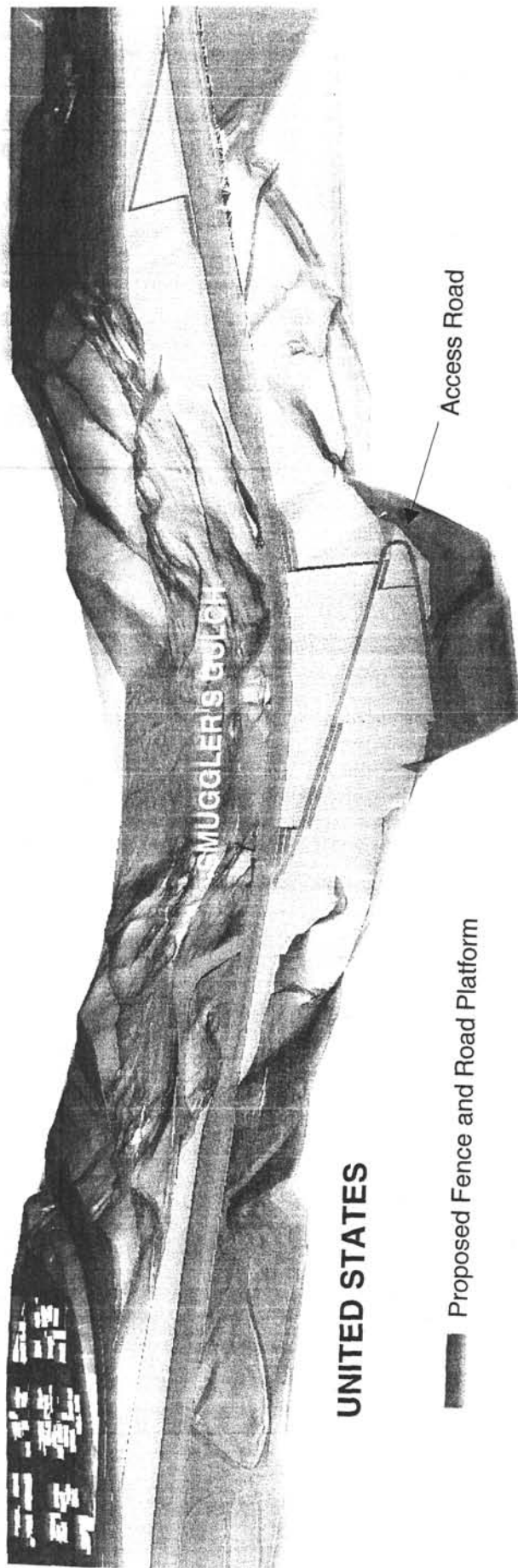
technology, and the removal of barriers and obstacles that could impede the successful operation of the system.

In addition to the requirement to comply with IIRIRA, the need for the proposed action, therefore, is to halt the continual influx of illegal aliens and smugglers into the San Diego area by effecting a permanent deterrence through a certainty of detection and apprehension. Another need is to reduce the current enforcement footprint that will ensure a more efficient and effective control of the border region. The purpose and objectives of the proposed action is to provide for integration of infrastructure and technology into the current strategy for border control. This will maximize the proactive, deterrent enforcement capability of the USBP while gaining the necessary and desired permanent status of deterrence. The following paragraphs provide further elaboration of the purpose and needs of the proposed action.

Localized efforts have had some success in deterring smugglers from utilizing traditional entry corridors. However, these efforts have the potential to degrade the general environment, because they depend largely upon a massive influx of personnel and equipment. This results in short term successes of the operation because barriers or deterrence factors are in place and the cover and conceal (brush, houses, close transportation routes) that initially made the area



MEXICO



UNITED STATES

Proposed Fence and Road Platform

Access Road



Date: May 2003

Figure 2-9. 3-Dimensional Topographic Depiction of Proposed Action at Smuggler's Gulch

EXHIBIT NO. 7

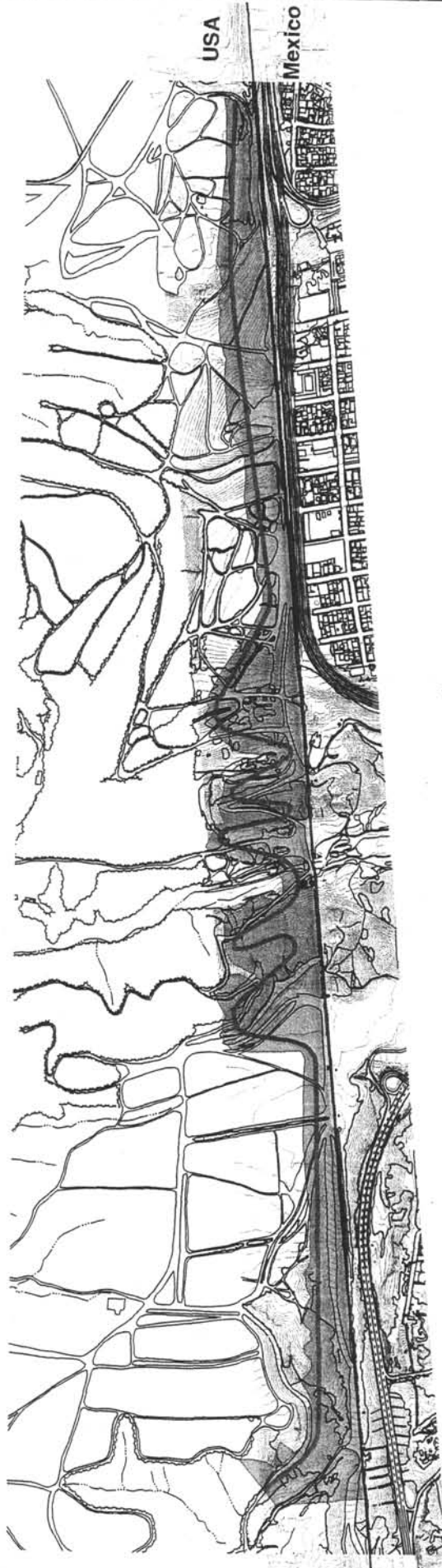
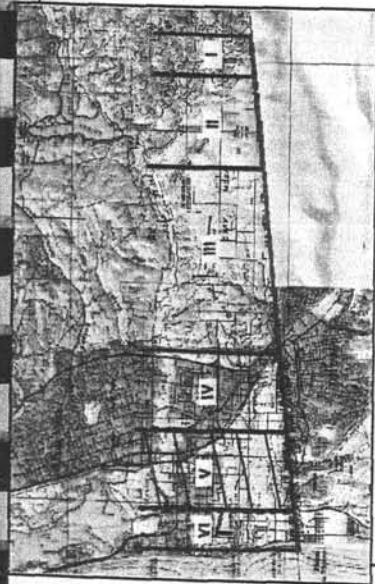
APPLICATION NO.

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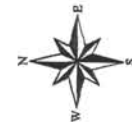
INS  
Schematic - Smuggler's Gulch



Figure 2-13. Smuggler's Gulch Bridge Alternative Design (adapted from M. Baker Jr. Engineers, 2001)



- Fence Alignment
- Contour Lines
- Roads
- Permanent Impact Area



Date: July 2003

Figure 2-15. Area V - Smuggler's Gulch - Multi-Switchback Alternative

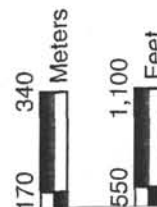
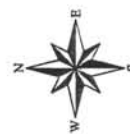
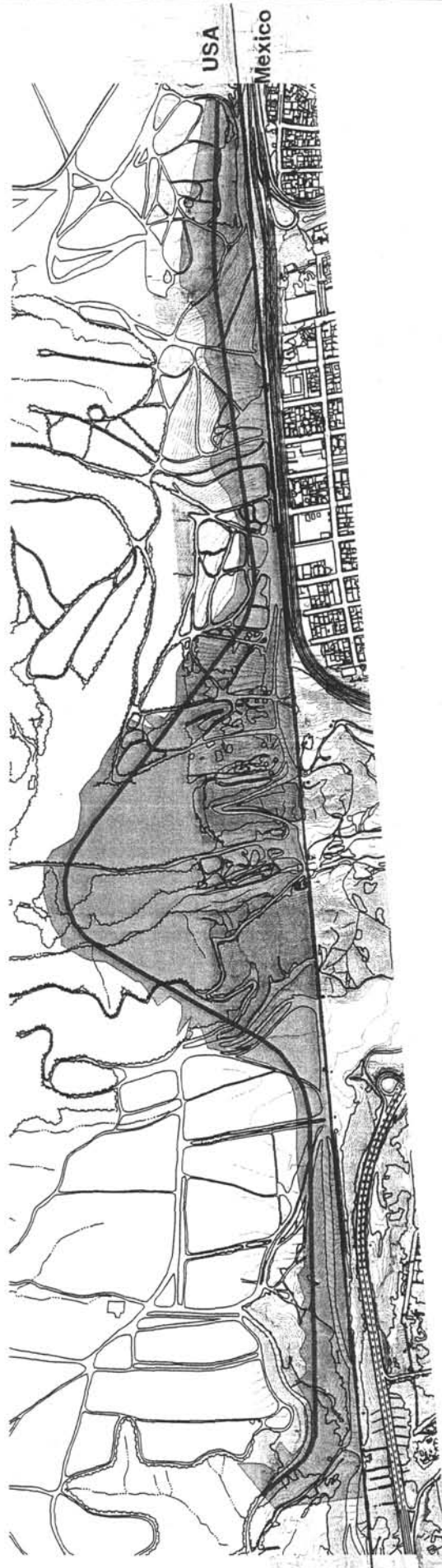
EXHIBIT NO. 9

APPLICATION NO.

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INS  
Multiple Switchback Altern.





- Fence Alignment
- Contour Lines
- - - Roads
- Permanent Impact Area

Figure 2-16. Area V - Smuggler's Gulch - Single Switchback Alternative

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INS  
Single Switchback Alternative

**Table 1.** Total acres of habitat impacted by the proposed action, by Project area.

Habitat Type	Area I	Area II	Area V	Area VI	Total Acres
Coastal Sage Scrub	7.9		16.4	2.0	26.3
Disturbed Coastal Sage Scrub	6.2		2.5	0.6	9.3
Native Grassland	13.8	2.5			16.3
Southern Willow Scrub			0.67	1.9	2.57
Mulefat Scrub			2.2	2.0	4.2
Maritime Succulent Scrub			3.7	9.4	13.1
Disturbed Maritime Succulent Scrub			0.1	0.7	0.8
Coastal Salt Marsh				1.0	1.0
Disturbed Coastal Salt Marsh				0.5	0.5
Southern Mixed Chaparral			9.2		9.2
Ruderal			12.2		12.2
Non-Native Woodlands			0.3	0.5	0.8
Disturbed/Developed	9.2	2.4	42.4	13.6	67.6
Unvegetated Waters of the US	0.2		3.0	0.1	3.3
<b>TOTAL</b>	<b>37.3</b>	<b>4.9</b>	<b>92.3</b>	<b>32.3</b>	<b>166.8</b>

**Table 2.** Mitigation ratios and replacement amounts for the proposed action.

Habitat Type	Total Acres Impacted	Conservation Ratio	Proposed Replacement Acreage
Coastal Sage Scrub (CSS)	26.3	3:1	78.9
Disturbed CSS	9.3	1:1	9.3
Native Grassland	16.3	3:1	48.9
Southern willow scrub	2.57	3:1	7.71
Mulefat scrub	4.2	3:1	12.6
Unvegetated Waters of U.S.	3.3	1:1	3.3
Maritime succulent scrub (MSS)	13.1	3:1	39.3
Disturbed MSS	0.8	2:1	1.6
Southern Mixed Chaparral	9.2	2:1	18.4
Disturbed/barren soil in Critical Habitat	11.6	1:1	11.6
Total	96.3		231.6

EXHIBIT NO. 11

APPLICATION NO.

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B.O. INS Tables

Table 3. Conservation strategies for offsetting impacts to federally listed species and unoccupied wetlands from the BIS Project.

Resource	Impacts	Conservation Requirement	Proposed Conservation
Quino checkerspot/gnatcatcher Critical Habitat (Areas I and II)	7.9 acres CSS	23.7 acres @ 3:1	41.5 acres of CSS to be restored/enhanced at Spring Canyon
	6.2 acres disturbed CSS	6.2 acres @ 1:1	
	11.6 acres Disturbed/Barren soil	11.6 acres @ 1:1	
	16.3 acres Native Grassland	48.9 acres @ 3:1	20 acres transferred to Spring Canyon and 28.9 acres of Quino habitat to be enhanced by noxious weed eradication program.
Vireo/flycatcher impacts (Areas I, V, and VI)	2.57 acres SWS	7.7 acres @ 3:1	23.6 acres restoration of riparian habitat on lands adjacent to Tijuana River floodplain. (Location to be formalized with Service)
	4.2 acres MFS	12.6 acres @ 3:1	
	3.3 acres unvegetated waters	3.3 acres @ 1:1	
Gnatcatcher habitat (Areas V and VI)	13.1 acres MSS	39.3 acres @ 3:1	4 acres MSS preserved on Lichty Mesa, 36.9 acres of MSS restored on Spooner's Mesa adjacent to existing native shrublands and a small acreage associated with riparian restoration.
	0.8 acres disturbed MSS	1.6 acres @ 2:1	
	9.2 acres chaparral	18.4 acres @ 2:1	18.4 acres of chaparral to be restored at Spring Canyon.
	18.4 acres CSS	55.2 acres @ 3:1	58.3 acres of CSS to be restored/enhanced at Spring Canyon
Unoccupied wetlands	3.1 acres disturbed CSS	3.1 acres @ 1:1	
	1.0 acres coastal salt marsh		To be determined by Section 404 permit from the Corps.
	0.5 acres disturbed coastal salt marsh		

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B.O. Conservation  
INS Strategies



Where possible, the INS/USBP will offset habitat losses within or near the area where the impact will occur in a configuration that is biologically defensible (i.e. within or near the project footprint only when adjacent to large contiguous blocks of conserved lands such as the Multi-Habitat Planning Area). The Service and INS/USBP have previously agreed that the INS lands within the Spring Canyon/Arnie's Point area will be used to gain the fullest extent of mitigation credits as is practicable. Therefore, there will be some compensation that occurs in areas not included in the Spring Canyon area. Two primary conservation measures are proposed to reduce the impacts to the Federally protected species occupied and designated critical habitat: (1) Conservation or Transfer of Lands to a Resource Agency and (2) Restoration and Re-vegetation of Disturbed Habitats. Table 3 identifies acres of conservation strategies for offsetting impacts to federally listed species. Figures 3, 4, and 5 identify the potential location of the approximate 24 acres of roads on Federal lands that will be closed/restored by revegetation efforts. Road closures on private lands have not been identified at this time.

The project will impact 1.0 acre of coastal saltmarsh habitat and 0.5 acres of disturbed coastal saltmarsh habitat. Impacts will be offset according to conditions in a future Corps' 404 permit.

Previous biological opinions (1-6-01-F-1089.12 and 1-6-03-F-1089.17) included conservation measures to restore a vernal pool complex on the top of Arnie's Point. Each biological opinion had its own vernal pool restoration component, including the restoration/ enhancement of vernal pool habitat and associated watertsheds. The restoration component includes restoring approximately 1.4 acres of vernal pool surface area and two acres of native grasslands within and around the vernal pool preserve. The enhancement component includes dethatching 18 acres of exotic plant species in the preserve area.

### Conservation Measures

The proposed action contains the following measures which will be implemented as part of the proposed project:

1. All beach and vegetated areas outside of the project footprint will be delineated by a qualified biologist as Environmentally Sensitive Areas (ESAs). All parties in conjunction with this operation will strictly avoid these areas. No construction activities, materials, or equipment will be permitted in the ESA. The boundaries of the ESA will be fenced with orange plastic snow fencing.
2. Construction work areas shall be delineated and marked clearly in the field prior to habitat clearing, and the marked boundaries maintained throughout the construction period.
3. An employee education program will be developed. Each employee (including temporary, contractors, and subcontractors) will receive a training/awareness program prior to working on the proposed project. They will be advised of the potential impact to the listed species and the potential penalties for taking such species. At a minimum, the program will include the following topics: occurrence of the listed and sensitive species in the area, their general ecology, sensitivity of the species to human

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APPLICATION NO.

B.O. Conditions  
CD-63-03

activities, legal protection afforded these species, penalties for violations of Federal and State laws, reporting requirements, and project features designed to reduce the impacts to these species and promote continued successful occupation of the project area environs. Included in this program will be color photos of the listed species, which will be shown to the employees. Following the education program, the photos will be posted in the contractor and resident engineer office, where they will remain through the duration of the project. The USBP and designated biological monitor will be responsible for ensuring that employees are aware of the listed species.

4. The project proponent will designate a qualified biologist who will be responsible for overseeing compliance with protective measures for the listed species during construction activities within designated areas. The designated biologist's qualifications shall be subject to the approval of the Service. The biologist shall immediately notify the project proponent's designated representative to halt all associated project activities which may be in violation of this biological opinion. In such an event, the project proponent will halt all construction activities and contact the Service within 24 hours.
5. The designated biologist will monitor construction activities within designated areas during critical times such as breeding seasons, vegetation removal, the installation of Best Management Practices (BMPs) and ESA fencing, and all avoidance and minimization measures are properly constructed and followed.
6. All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities, will occur in designated upland areas. The designated upland areas will be located in such a manner as to prevent any runoff from entering waters of the United States, including wetlands.
7. Typical erosion control measures, BMPs, throughout the project area will be employed in accordance with the Project SWPPP and all conditions in the 401 Water Quality Certification requirements of the Regional Water Quality Control Board.
8. No invasive exotic plant species will be seeded or planted in landscaped areas adjacent to or near sensitive vegetation communities. In compliance with Executive Order 13112, impacted areas shall be revegetated with plant species native to local habitat types, and will avoid the use of species listed in Lists A & B of the California Exotic Pest Plant Council's list of Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999 to the extent practicable. Areas hydroseeded for temporary erosion control measures will use native plant species when feasible.
9. No off-road vehicle activity will occur outside of the project footprint by the project proponent, project workers, and project contractors. The USBP will discourage offroad use by the public in areas adjacent to the BIS project. Normal USBP operations will continue to use designated unpaved roads north of the project footprint for the duration of project construction.

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10. To reduce attraction of ravens and crows, all trash shall be placed in crow/raven-proof containers and promptly removed from the site.
11. No pets owned or under the care of the project proponent or any and all construction workers shall be permitted inside the project's construction boundaries, adjacent native habitats, or other associated work areas.
12. Any night lighting for the construction of the BIS Project will be selectively placed, shielded, and directed away from all native vegetative communities north of the project footprint and the beach. Proposed lighting in the area is not expected to have a significant impact on the gnatcatcher due to special bulb designs for the project. These lights have been designed to ensure no increase in ambient light conditions in areas north of the project footprint.
13. All areas temporarily impacted by project construction will be revegetated with native plant species following the Service approved restoration plan. All native seed and plant stock will be from seed and propagules collected within a five mile radius of the project area to the extent practicable. Seed sources outside of the 5 mile radius will be approved by the Service to determine whether the source is acceptable. All restored areas will have successfully established native plant communities within five years of implementing restoration.
14. All restoration activities will be conducted by restoration firms with at least five years experience conducting successful comprehensive ecological restoration in southern California of the habitat type to be restored/enhanced.
15. Restoration plans will be developed by a consulting firm with at least five years experience writing restoration plans for the habitat type to be restored/enhanced. All restoration plans and long-term management plans will be approved by the Service prior to the commencement of construction.
16. The project proponent will establish an appropriate financial mechanism (determined using a program such as the Property Analysis Report (PAR) system) to fully implement all appropriate conservation measures.
17. The project proponent will ensure that long-term management of the conservation sites will occur. Within three months of the acquisition of the conservation parcels or easement, a draft management plan will be developed in coordination with the Service. The report should be finalized within six months and implemented immediately following final sign off of all restoration activities for each parcel. If the conservation sites are transferred to a third party for long-term management, then an endowment with sufficient funds (determined using the PAR system) will be established subject to availability of funds, unless otherwise negotiated with the receiving party.

EXHIBIT B, p. 3



The following measures will be implemented to avoid impacts to the least tern and snowy plover:

18. All construction activities on the beach will be timed to avoid the nesting season of the least tern (April 1 to September 15) and the snowy plover (March 1 to September 15).
19. The designated biologist will monitor the site throughout project construction on the beach to ensure that no snowy plover have moved into the project footprint. If snowy plovers are found within the project footprint, work will be temporarily halted until the snowy plovers move to a location away from the construction area.
20. For the snowy plover, a year round resident on the beach, a barrier fence will be installed along the northern boundary of the project footprint on the beach. The barrier fence should be a fine mesh material that will prevent snowy plovers from running into the active construction area.

The following measures will be implemented to avoid and minimize impacts to the vireo and potential impacts to the southwestern willow flycatcher, if the willow flycatcher establishes a territory in the area:

21. Construction of all project features, within proximity to riparian habitat, including clearing and grubbing will be timed to avoid the nesting season of the vireo (March 15 to September 15) and willow flycatcher (May 1 to September 15).
22. Since willow flycatchers and vireo are site tenacious (they typically return to the same nesting territory each year), all areas where willow flycatchers and/or vireos territories are known to occur will have noise attenuation structures constructed prior to the breeding season to reduce noise levels to 60 d(B)A  $L_{eq}$  or to ambient noise levels if ambient noise levels exceed 60 d(B)A  $L_{eq}$ . Those construction activities that are creating the excess noise (greater than 60 d(B)A  $L_{eq}$  or greater than ambient noise levels) will cease operation until effective noise attenuation structures are in place.
23. To offset impacts to vireo and any potential future impacts to willow flycatcher, all southern willow scrub and mulefat scrub impacted by the project will be replaced at a 3:1 ratio. Replacement will occur through the excavation of upland habitat and restoration of riparian habitat within the Tijuana River floodplain on lands within close proximity to Smuggler's Gulch. The wetland restoration plan will be approved by the Service prior to the start of construction.
24. Restoration of habitat for vireos and willow flycatchers will consist of a multi-layered willow riparian scrub habitat with the canopy comprised of trees (e.g., black willow, red willow, arroyo willow, cottonwoods) and an understory consisting of shrubs (e.g., sandbar willow, mulefat).
25. All areas proposed for restoration will be cleared of exotic plant species and replaced with native species.

EXH. B, p. 4

The following measures will be implemented to avoid and minimize impacts to gnatcatchers:

26. Project impacts to maritime succulent scrub and southern mixed chaparral, which can potentially be used by gnatcatchers as nesting or foraging habitat, will be replaced at 3:1 and 2:1 ratio respectively.
27. In CSS and MSS vegetative communities, all clearing and grubbing activities will be timed to avoid the nesting season of the gnatcatcher (February 15 to September 1).
28. Since gnatcatchers are year-round residents and are site tenacious (they typically utilize the same nesting territory each year), all areas where gnatcatcher territories are known to occur will have noise attenuation structures constructed prior to the breeding season to reduce noise levels to 60 d(B)A  $L_{eq}$  or to ambient noise levels if ambient noise levels exceed 60 d(B)A  $L_{eq}$ . Those construction activities that are creating the excess noise will cease operation until effective noise attenuation structures are in place.
29. To offset impacts to gnatcatchers, all MSS impacted by the project will be replaced at a 3:1 ratio and disturbed MSS will be replaced at 2:1. Replacement will occur by preserving and/or restoring lands on Lichty Mesa and Spooner's Mesa within the Tijuana River Valley on lands located in areas V and VI.

The following measures will be implemented to avoid and minimize impacts to Quino:

30. To offset impacts to Quino designated critical habitat impacted in project Areas I and II, the project proponent will implement a noxious weed eradication program, on 28.9 acres of lands located within designated critical habitat Unit 3, following the Service approved noxious weed eradication plan.
31. All patches of dwarf plantain (*Plantago erecta*), and/or other known host plants (*Plantago* spp.; plantain, *Castilleja exserta*; annual owl's clover, and *Cordylanthus rigidus*; thread-leaved birdsbeak) that occur immediately adjacent to the project footprint, will be clearly delineated by the designated biologist with experience identifying Quino habitat and familiar with the areas of known Quino activity near the construction corridor. The host plant areas will be delineated with orange snow fencing during construction activities.
32. To avoid harm to Quino larvae, all clearing and grubbing within 50 feet of host plant areas immediately adjacent to and within Project Area I will occur during the Quino flight season. The flight season is determined annually by Service staff and is posted on the Service website: [http://carlsbad.fws.gov/Rules/QuinoDocuments/Quino\\_https/Quino\\_protocol\\_monit.htm](http://carlsbad.fws.gov/Rules/QuinoDocuments/Quino_https/Quino_protocol_monit.htm).
33. Service staff will be notified at least one week prior to the start of construction in Project area I. For those areas containing host plants within 50 feet of the construction corridor, monitoring of host plants will be conducted from January 1 to the beginning

ExH.13, p.5

of the adult flight season. If larvae are found to be active, construction activities will be revised such that no impact to the larval population would occur.

## STATUS OF THE SPECIES/CRITICAL HABITAT

### Least Bell's Vireo

#### *Listing Status*

The vireo was federally-listed as endangered on May 2, 1986 (*Federal Register* 51: 16474), and state listed as endangered in California on October 2, 1980. A draft recovery plan was prepared for this species in March 1998 (Service 1998).

#### *Species Description*

The vireo is a small migratory songbird. It is olive-gray above and pure white on its underparts with two dull white wing stripes and dull white to olive narrow margins on the outer border of its wings and tail. Males and females are identical in plumage. This vireo is easily distinguished by its song, a rapid bubbling series of rough notes, increasing in tempo and intensity toward a rapid climax. Phrases of the song are alternatively slurred upward and downward. Eggs are on average 17.5 millimeters (mm) (0.7 inches (in)) long, and dull white, often with fine brown, black, or reddish-brown dots concentrated on the larger end (Brown 1993).

The least Bell's vireo is in the family *Vireonidae*, and is one of four subspecies of Bell's vireo (*Vireo bellii*) that have been recognized. Although all subspecies are similar in behavior and life history, they are isolated from one another on both the breeding and wintering grounds (Hamilton 1962).

#### *Distribution*

The vireo formerly was found in valley bottom riparian habitats from Tehama County, California, southward locally to northwestern Baja California, Mexico, in the south, and as far east as Owens Valley, Death Valley, and along the Mojave River (Grinnell and Miller 1944). Except for a few outlying pairs, the subspecies is currently restricted to southern California south of the Tehachapi Mountains and northwestern Baja California (Garrett and Dunn 1981). Least Bell's vireo breeding pairs currently occur in Monterey, San Benito, Inyo, San Bernardino, Ventura, Los Angeles, Orange, Riverside, and San Diego Counties. The highest reported concentration is in San Diego County along the Santa Margarita River (Small 1994). According to Grinnell and Miller (1944) 1,200 meters (m) [4,000 feet (ft)] is the upper limit where the vireo occur in coastal southern California.

#### *Habitat Affinities*

The vireo primarily occupies riparian habitats that typically feature dense cover within 1 to 2 m (3 to 7 ft) of the ground and a dense, stratified canopy. It inhabits low, dense riparian growth along water or along dry parts of intermittent streams. The understory is typically dominated by

ExH.13, p.6

Marron Valley area to recovery of Quino, any increased illegal immigrants traffic through this area is cause for concern.

### Beneficial Effects

Completion of the BIS would reduce the direct impacts from illegal immigrants attempting to illegally cross the international border within 14 miles of the Pacific Ocean. Historic and current levels of foot traffic from people attempting to cross into the U.S. likely have affected listed species by trampling vegetation and Quino larvae, knocking listed songbirds out of their nests, and starting fires in highly flammable vegetative communities. In response to this foot traffic across the border, DHS uses teams in vehicles and on foot to pursue and apprehend perpetrators. This results in further degradation of native plant communities, by driving over native vegetation, creating new roads, shining lights into native habitat, and trampling vegetation during pursuit and capture activities. The installation of the BIS should reduce the need for numerous large teams patrolling the area north of the BIS, extensive lighting of native vegetative communities north of the BIS, and an overall reduction in use of patrol roads north of the BIS.

Another beneficial effect will be the abandonment and restoration of approximately 100 miles of select roads adjacent to the BIS project (INS 2002c). Taking select roads out of use and revegetating them with native plant species will reduce fragmentation and increase the size and quality of native plant communities. The INS has committed to abandoning the roads depicted on Figures 3, 4, and 5 upon completion of the BIS. The INS has also committed to restoring those abandoned roads that are located on public lands, which will provide about 24 acres of restored habitat. Restoration of the remaining abandoned roads would occur if permission from the landowners can be obtained. In the event that future intelligence determines that one or more of the roads scheduled for abandonment would hinder or impede enforcement actions, an alternate road(s) of equal length would be abandoned. The INS will coordinate with the Service to identify the alternate road(s) and to schedule the closure. Furthermore, the INS will continue to evaluate the need for the patrol and access roads north of the BIS to determine if additional roads can be abandoned.

### CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal Actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

In August 2002, the California State Parks released a Notice of Availability and Intent to Adopt an Initial Study/Mitigated Negative Declaration that identified the addition and rehabilitation of day-use facilities at Border Field State Park. The project includes the construction and landscaping improvements at the base of Monument Mesa, on Monument Mesa, Monument Road, and at the Tijuana Estuary Visitor Center. At Border Field State Park, Canyon Creek, California State Parks will construct a new entrance station of Monument Road. The structure will be approximately 450 square feet. Monument Mesa bluff two improvement projects are proposed that include

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B. O. INS <i>Conclusions</i>



public restroom facilities and repair of an existing parking lot. On Monument Mesa, California State Parks plans to add a group picnic facility with a ramada, plant native landscaping, and improve the drainage associated with runoff on the mesa top. No work has been proposed within areas having native habitat.

An ongoing problem in the Tijuana River watershed is the movement of sediment into the Tijuana estuary. Currently, large precipitation events move sediment from the upper subwatersheds in Mexico into the main stem of the Tijuana River and eventually into the Tijuana River estuary. This sediment load has been filling in estuarine wetlands at an accelerated rate. In addition, subwatersheds that feed directly to the estuary (e.g., Smuggler's Gulch and Goat Canyon) exacerbate this problem.

The project area will continue to be subjected to sewage spill events that occur in Mexico and flow across the border through Smuggler's Gulch and Goat Canyon. In addition, it is expected that unauthorized roads and trails will continue to be constructed in the southwestern portion of the Tijuana River Valley without the benefit of environmental review or associated offsetting restoration efforts for the habitat being impacted. This latter problem can only be addressed by increased law enforcement efforts along with systematic documentation of the habitat destruction and the identification of parties responsible for the impact.

Many actions that could reasonably be expected to occur within the vicinity of the proposed project will be subject to future section 7 consultations because of the numerous Federal agencies that have management or regulatory oversight in this area, including NOAA, Corps, IBWC, DHS, and INS.

## CONCLUSION

After reviewing the current status of the species at issue, environmental baseline, effects of BIS, and cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the vireo, willow flycatcher, gnatcatcher, and Quino, and the project is not likely to adversely modify designated critical habitat for the gnatcatcher and Quino. We have reached these conclusions for the following reasons:

### Vireo and Willow Flycatcher

- The proposed action would take one (1) pair of vireo and one (1) pair of willow flycatcher, a small proportion of the rangewide populations of these species.
- The permanent loss in Arcas V and VI of 2.57 acres of southern willow scrub and 4.2 acres of mulefat scrub and 3.1 acres of waters of the U.S. is not large relative to the extent of habitat remaining over their ranges.
- The permanent and temporary impacts to southern willow scrub and mulefat scrub habitat within the Tijuana River Valley have been minimized through conservation measures incorporated into the project description that identified the replacement of these

EXH. 14, p. 2

vegetative types at a minimum of a 3:1 ratio with follow-up monitoring to ensure success of the restoration effort.

#### Gnatcatcher

- The proposed action would take two (2) pairs of and one (1) individual gnatcatcher(s), a small proportion of the rangewide populations of this species.
- The permanent loss of 26.3 acres of CSS, 9.3 acres of disturbed CSS, 13.1 acres of MSS, 0.8 acre of disturbed MSS, and 9.2 acres of SMC is not large relative to the amount of existing suitable habitat available in MSCP and the range of this species.
- The permanent and temporary impacts to CSS, MSS and SMC within the Tijuana River Valley have been minimized by the incorporation of conservation measures into the project description, including the restoration and enhancement of CSS, MSS and SMC.

#### Quino

- The proposed action would take all Quino larvae and eggs that occupy dot-seed plantain patches within construction areas of the project footprint and two (2) adults flying along the access roads to and within the project footprint, a small proportion of the rangewide population of this species.
- The numbers of Quino that may be harmed by the loss of 42.2 acres of designated critical habitat that contain primary constituent elements is relatively small compared to the total population in critical habitat Unit 3.
- The permanent and temporary impacts of the proposed action to occupied critical habitat containing constituent elements have been minimized by the incorporation of conservation measures in the project description, including the restoration and enhancement of designated critical habitat for Quino.

#### INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as

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part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by INS and/or agencies and individuals designated by INS, as the lead federal agency for the project. INS has ongoing responsibility to regulate the activity that is covered by this incidental take statement. If INS: (1) fails to assume and implement the terms and conditions or (2) fails to require its designated agency(ies) and individual(s) to adhere to the terms and conditions of this incidental take statement through enforceable terms incorporated into contracts, grants, and permits related to work activities associated with the project, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of the incidental take, INS or its designated agency(ies) or individual(s), must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

The Service will not refer the incidental take of any such migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including the amount and/or number) specified herein.

#### Amount or Extent of Take

The Service anticipates that approximately one (1) pair of vireo and one (1) pair of willow flycatcher could be harmed as a result of this proposed action. The take may be in the form of harm and harassment as a result of the removal of 2.57 acres of southern willow scrub and 4.2 acres of mulefat scrub that otherwise could be utilized by both of these species as foraging habitat and/or nesting habitat.

The Service anticipates that approximately two (2) pairs and one (1) individual gnatcatchers could be harmed as a result of this proposed action. The take may be in the form of harm and harassment as a result of the removal of 26.3 acres of CSS, 9.3 acres of disturbed CSS, 13.1 acres of MSS, 0.8 acres of disturbed MSS, and 9.2 acres of SMC that otherwise could be inhabited by the gnatcatcher.

The Service anticipates that incidental take of Quino checkerspot butterfly will be difficult to quantify due to the variability of population sizes from year to year, and the difficulty in detecting individuals during the different life stages (i.e. larval instars, pupae, adults). If more than two (2) adults flying along the access roads to and within the project footprint are killed or injured by vehicles, INS shall report and discuss the circumstances to determine the need for reinstitution of consultation.

If, during the course of the action, incidental take of numbers higher than stated above occurs to vireos, willow flycatchers, adult Quino, and/or gnatcatchers, INS, or its designated representative(s), shall immediately notify the Service in writing as required by 50 CFR § 402.14(i). If incidental take occurs, INS, or its designated representative(s), should cease the

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activity resulting in the take and reinitiate consultation with the Service. INS should provide an explanation of the causes of the taking.

#### Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize take of the vireo, willow flycatcher, gnatcatcher, and Quino. These measures are based on the premise that take of these species will be avoided and minimized through the implementation of the thirty-four (34) Conservation Measures as described in the Project Description of this biological opinion.

1. INS shall submit to the Service, prior to the start of construction, pertinent information required to ensure that take of these species, is minimized.
2. INS shall monitor and adaptively manage USBP operations and maintenance in lands adjacent to the 14-mile BIS to ensure that take of these species is minimized.
3. INS shall offset unavoidable project impacts by implementing the restoration and long-term management of conservation lands.

#### Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, INS, and its designated agency(ies) and contractor(s) (hereinafter INS) must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. INS shall implement Reasonable and Prudent Measure Number 1 through the following term and conditions:
  - 1.1 Ambient noise levels shall be determined prior to the start of construction.
    - All areas where vireos, gnatcatchers, and willow flycatchers may be present or have historically occurred shall have ambient noise level contours along the BIS corridor determined prior to the start of construction. Noise level measurements shall be taken according to a Service-approved sampling design developed by a third party contractor with demonstrated experience conducting noise level monitoring.
    - The contractor shall prepare a report of the results of the noise level measurements to the Service for review prior to the start of any construction activities associated with Areas I, V, and VI of the BIS project. Based on the results of this report, the INS shall work with the Service to develop a plan for the design and location of all noise attenuation barriers.

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- 1.2 The INS shall provide a map and schedule to the Service describing road closures and those roads to remain in use, along with recent aerial photographs and property ownership boundaries, for the presentation of this information.
  - 1.3 The INS shall provide the Service with all engineering and design documents, including the SWPPP, for review and comment prior to the completion of the design process.
  - 1.4 The INS shall submit in writing, the names, any permit numbers, resumes, and at least three references (of people who are familiar with the relevant qualifications of the proposed biologist) to the Service for review and approval of the designated biologist(s) who is responsible for overseeing compliance with protective measures for listed species during project-related activities.
2. INS shall implement Reasonable and Prudent Measure Number 2 through the following terms and condition:
- 2.1 The INS will monitor light levels immediately north of the tertiary fence to ensure that light levels do not illuminate native vegetation. If lighting illuminates native vegetation north of the BIS, then INS will modify light fixtures, or design and install shields to deflect light away from the native vegetation being illuminated.
  - 2.2 Since the effectiveness of the BIS may result in increased foot traffic of illegal immigrants into the mountains east of the BIS corridor, INS shall monitor and manage all new effects that the USBP may have on listed species and the native plant communities on which they depend. This information will be submitted to the Service as part of annual reporting requirements.
3. INS shall implement Reasonable and Prudent Measure Number 3 through the following terms and conditions:
- 3.1 Restoration/enhancement efforts shall be designed and implemented in a manner to ensure success.
  - To establish suitable hydrological conditions necessary to create riparian habitat, the restoration site shall be excavated and graded down to the same elevation as adjacent riparian habitat. The Service, in cooperation with the Corps' Regulatory Branch, shall review and approve the final grading of the site prior to beginning the revegetation phase of the restoration plan.
  - Seed mixes for all restoration efforts shall consist of clean seed of only plant species native to southwestern San Diego County. The project proponent shall not include plant species for seeding or planting that are on Lists A and B of the California Exotic Pest Council's list of Exotic Pest Plants of Greatest Ecological

EXH.14 p. 6

Concern in California as of October 1999. If local seed is not available, the INS shall work with the Service to find an acceptable solution.

- For each of the five years of post-seeding/planting weed management, exotic annual plant species shall have no more than ten (10) percent cover for any given year. All biennial/perennial species shall be removed from the restoration/enhancement sites.
- 3.2 The INS shall submit a plan for Service review and approval on the salvage and transplanting of the Baja California birdbush. INS shall coordinate with the Service in determining where and when the salvaged Baja California birdbush will be transplanted. This effort is being pursued by INS/USBP, even though it is not statutorily required, to avoid effects to this species that could lead to the possible listing of the species in the future.
- 3.3 Since Quino habitat includes bare ground, success criteria addressing exotic plant species on all restoration/enhancement sites within designated Quino critical habitat shall include:
- Total cover of annual exotic species for each of the five years of maintenance shall be less than five (5) percent. All biennial/perennial exotic species including but not limited to sweet fennel, starthistle, artichoke thistle, and pampas grass shall be removed from the restoration site until the success criteria in the restoration plan are met.
- 3.4 Since the plant communities at the border are unique, the INS shall hire a Service-approved restoration firm with a minimum of five-years demonstrated experience conducting successful comprehensive ecological restoration projects of CSS, MSS, SMC, riparian, and native grasslands in southern California.
- 3.5 The INS shall dedicate all restored/enhanced lands for permanent conservation through a mechanism to be approved by the Service. Prior to completing habitat restoration activities on the conservation lands, the INS shall submit a management and funding plan for review and approval by the Service.

#### Reporting Requirements

To demonstrate compliance with the foregoing Terms and Conditions, INS or its designated representative, shall submit an annual report, by November of each year, to the Service that describes and summarizes how the project is in compliance with the conservation measures, Reasonable and Prudent Measures, and the Terms and Conditions of this Opinion.

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Disposition of Sick, Injured, or Dead Specimens

The Service's Division of Law Enforcement, San Diego, California (619) 557-5063 is to be notified within three working days should any vireo(s), willow flycatcher(s), or gnatcatcher(s) be found sick, injured, or dead in the project area. The Service's Carlsbad Fish and Wildlife Office should be notified concurrently at (760) 431-9440. Written notification to both offices must be made within five calendar days and include the collection date and time, location of the bird(s), and any other pertinent information. Care must be taken in handling sick or injured bird(s) to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The remains of intact vireo(s), willow flycatcher(s), gnatcatcher(s), or Quino(s) shall be placed with: (1) educational or research institutions holding the appropriate State and Federal permits, or (2) the Service's Division of Law Enforcement, San Diego, California.

The Service retains the right to access and inspect the project site for compliance with the proposed project description and with the terms and conditions of this biological opinion. Because of the security surrounding the BIS, the Service will notify the Sector's Facilities Supervisor prior to entering INS/USBP lands. Any habitat destroyed outside the project footprint contemplated herein be reported immediately to the Service; reinitiation of consultation may be required. Compensation for such habitat loss will be requested at a minimum replacement ratio of 5:1.

**CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by implementing conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on a listed species or critical habitat, to help implement recovery of a listed species, or develop information. The recommendations provided below relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibilities for these species relative to other agency actions.

1. INS, in conjunction with the proposed riparian restoration plan that will be implemented with the project, should construct and operate during the vireo nesting season, two brown-headed cowbird traps in the Tijuana River Valley within Border Field State Park.
2. INS should provide funding to restore additional coastal sage scrub, maritime succulent scrub, and southern mixed chaparral habitats within ruderal and disturbed lands adjacent to the BIS corridor to remedy past damage not rectified by the proposed action.
3. The proposed project would reduce the MHPA by 163.6 acres. To offset this loss, INS should purchase a commensurate amount of conservation lands adjacent to existing MHPA as part of the conservation strategy for offsetting project impacts. In selecting areas to be conserved, INS should target lands that are adjacent to but outside of the MHPA.

**EXHIBIT NO. 15**

CD-63-03

B.O. Conservation  
INS Recommendations

4. The INS/USBP should coordinate with the City of San Diego to implement an enforcement mechanism to eliminate off-highway vehicle use on lands within the MHPA.
5. The INS should participate in planning efforts to construct a sedimentation basin in Smuggler's Gulch.
6. The INS, in cooperation with the Environmental Protection Agency and the Corps' Regulatory Branch, should continue to analyze alternatives in Smuggler's Gulch that are less environmentally damaging than the proposed action.
7. The INS should incorporate into, and implement as part of, their restoration planning efforts methods for salvaging all sensitive plant species (Ogden 1999c), particularly Brand's phacelia (*Phacelia stellaris*), and reestablishing these species as part of MSS restoration efforts.

For the Service to be kept informed of actions that minimize and avoid adverse effects or benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

#### REINITIATION NOTICE

This concludes formal consultation on the Border Infrastructure System Project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this biological opinion; (4) a new species is listed or critical habitat designated that may be affected by the action; (5) if noise attenuation barriers do not reduce construction noise levels north of the project footprint to 60 d(B)A  $L_{eq}$  hourly or ambient levels; or (6) sediment leaves the project footprint resulting in non-compliance with Water Quality Standards as determined by the State Regional Water Quality Control Board. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. If you have any questions or concerns about this biological opinion, please contact Martin Kenney or John DiGregoria of my staff at (760) 431-9440.

Sincerely,



Peter C. Sorensen  
Acting Assistant Field Supervisor

Ext. 15 p. 2



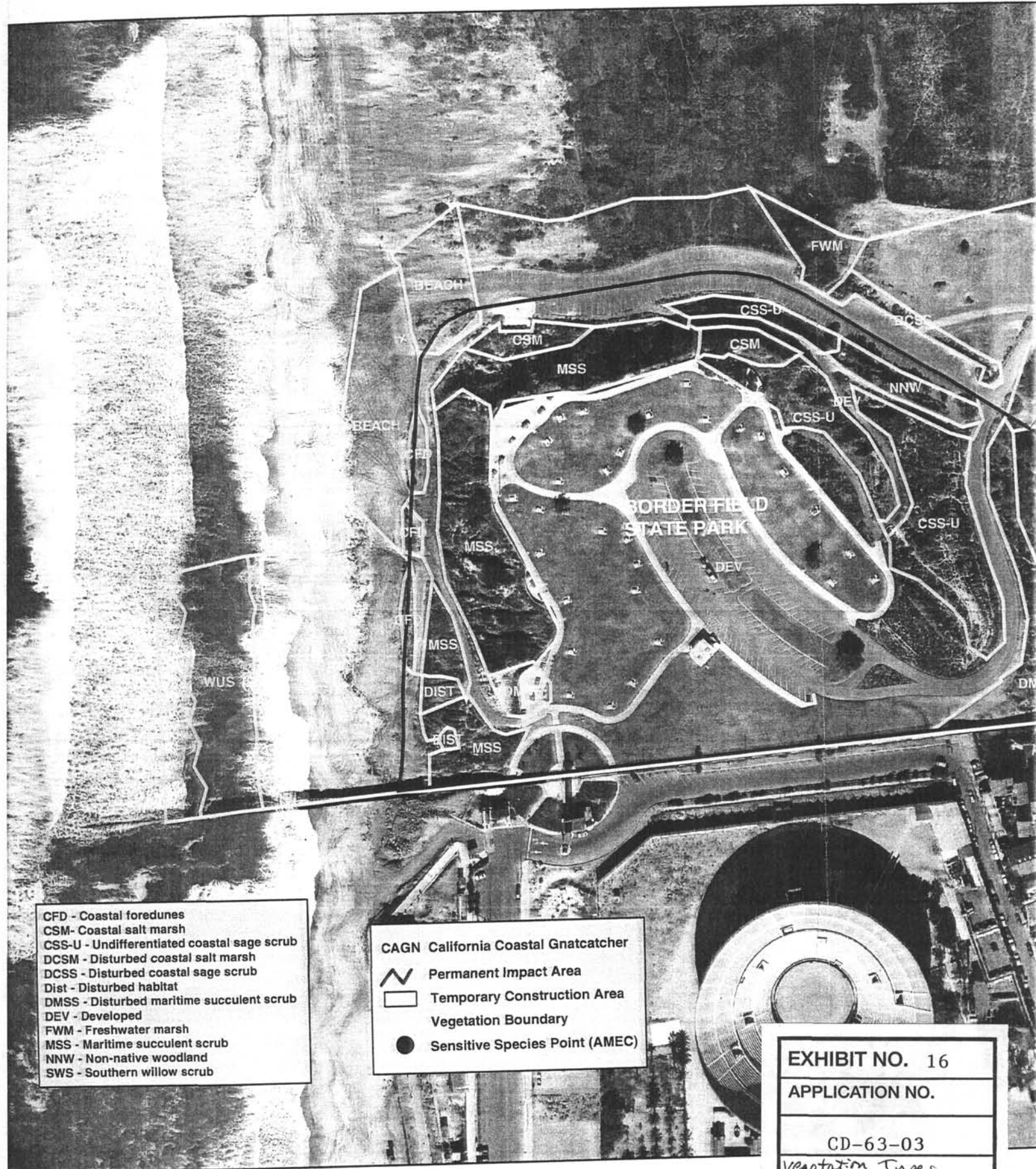
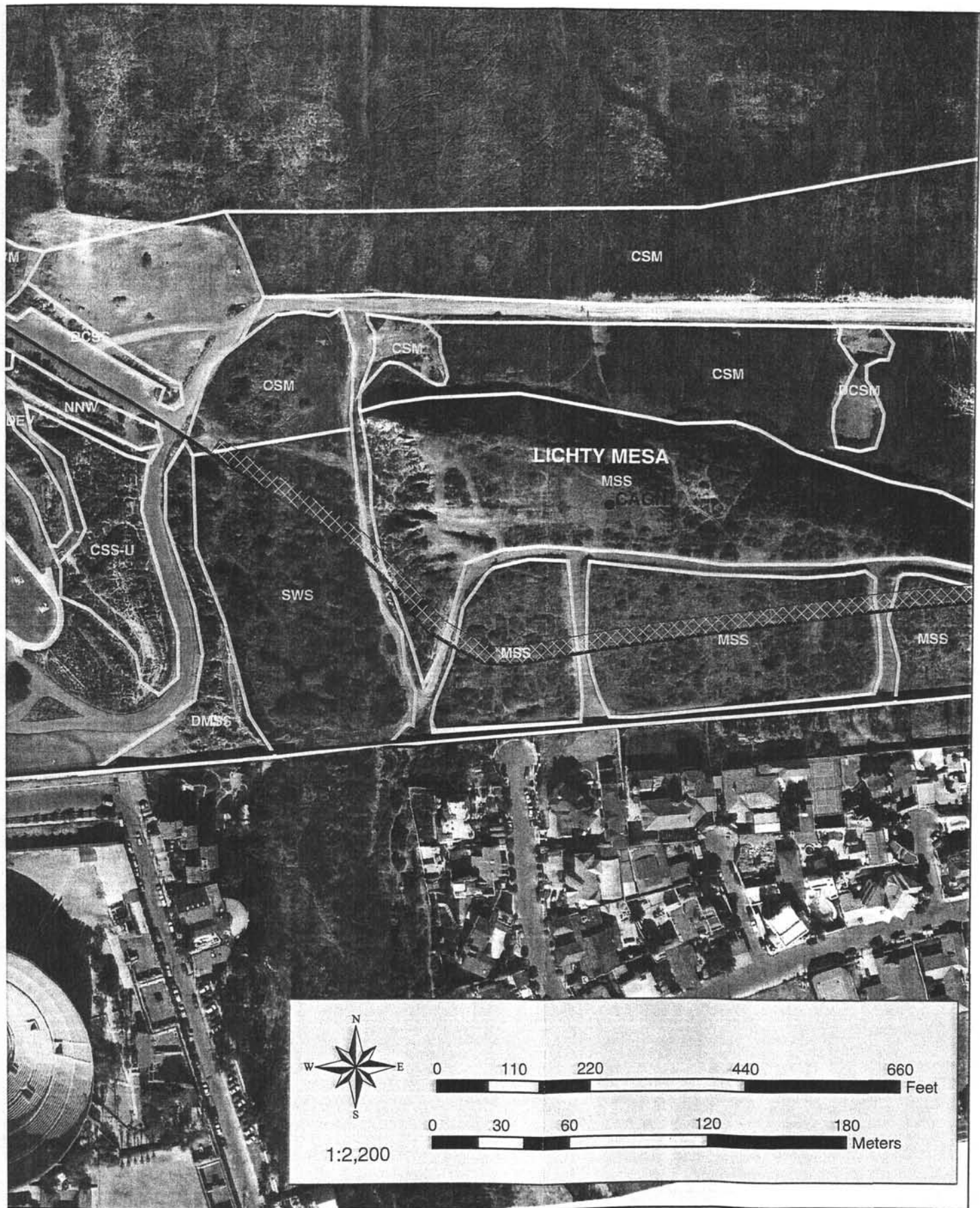


Figure 3-3. Vegetation Communities in Area VI near Border Field State Park



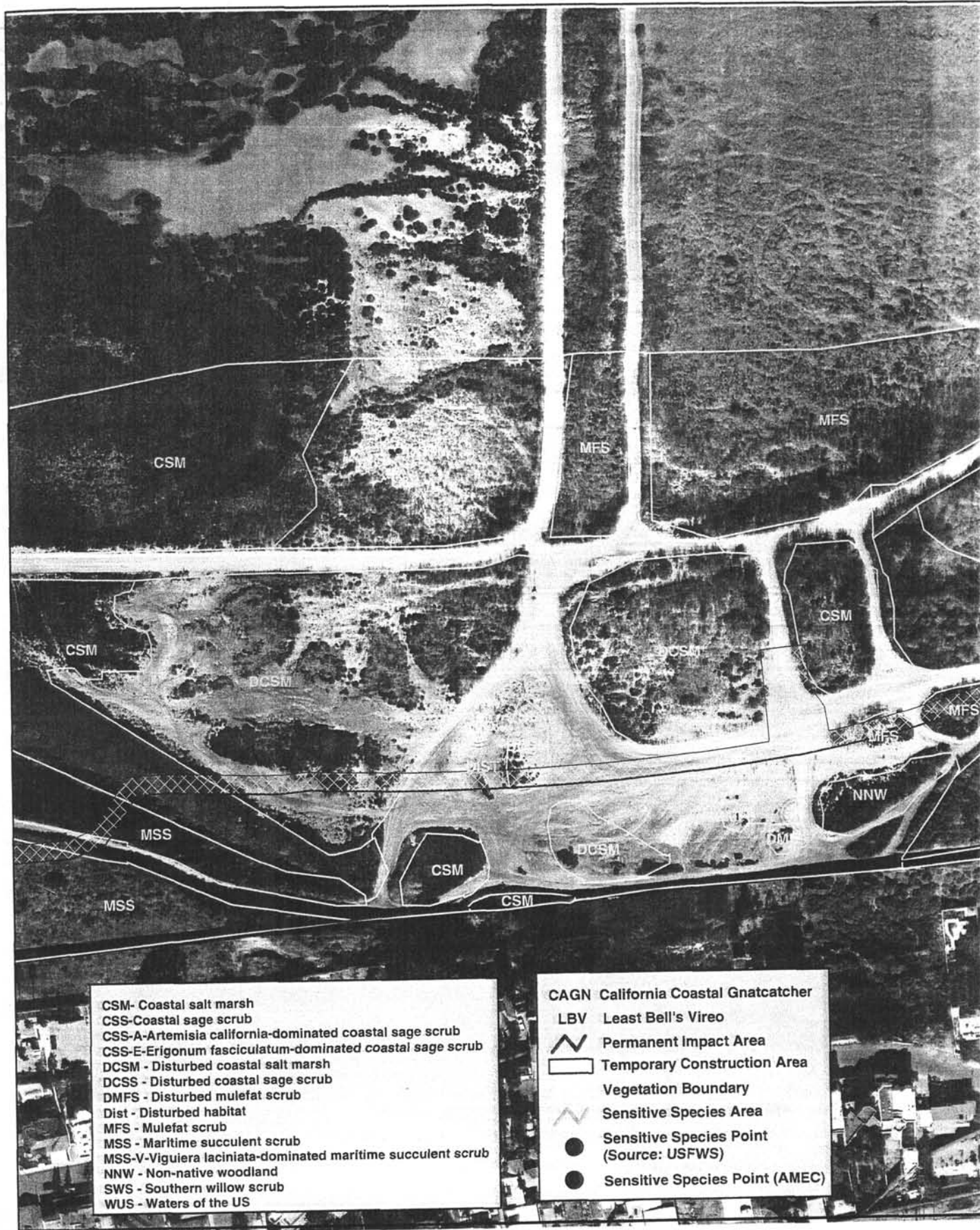
r Field State Park

**gsrC** / GULF SOUTH  
RESEARCH  
CORPORATION

EXH 16, p. 2

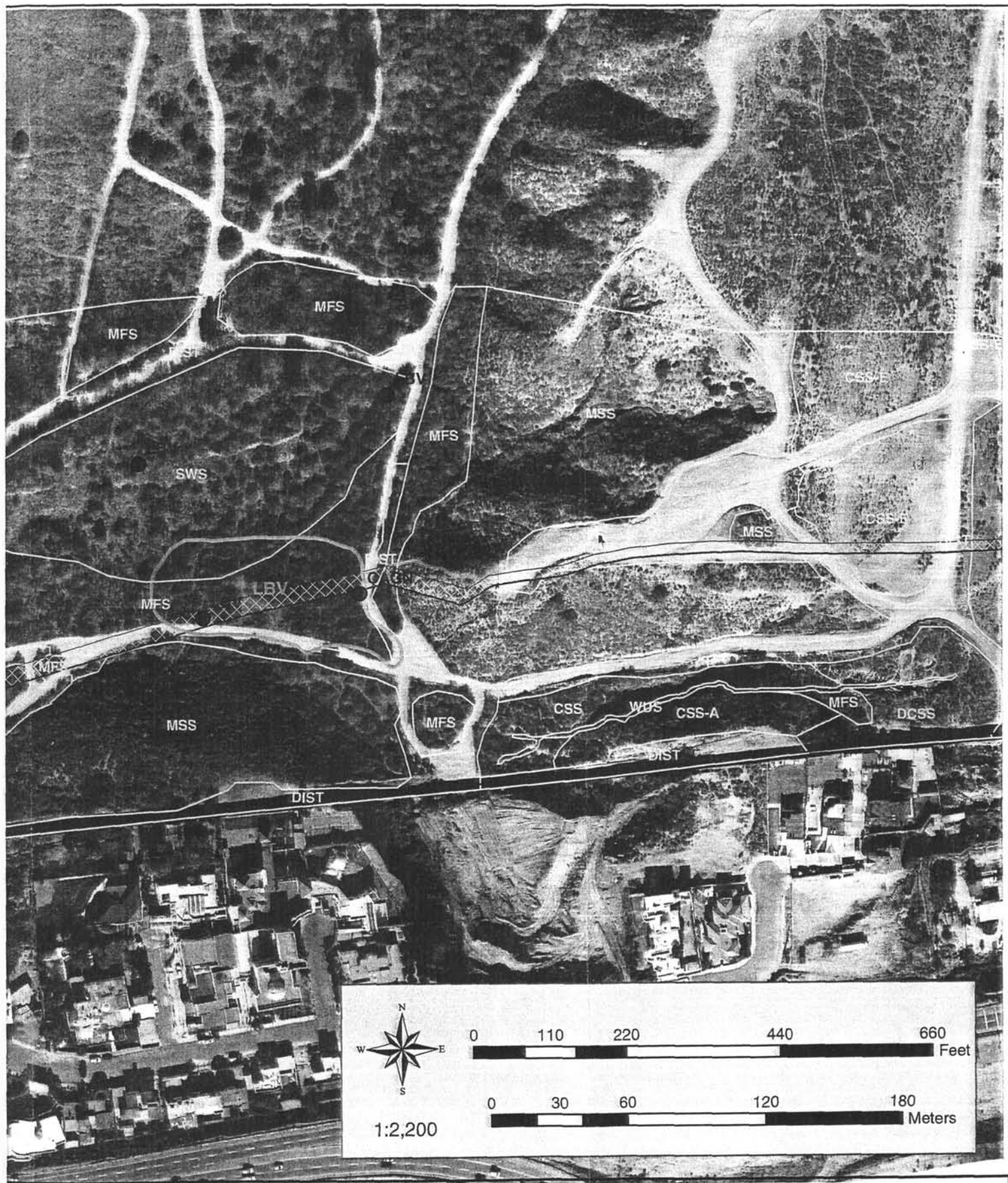
DATE: July 2002





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Figure 3-4. Vegetation Communities in Area VI between



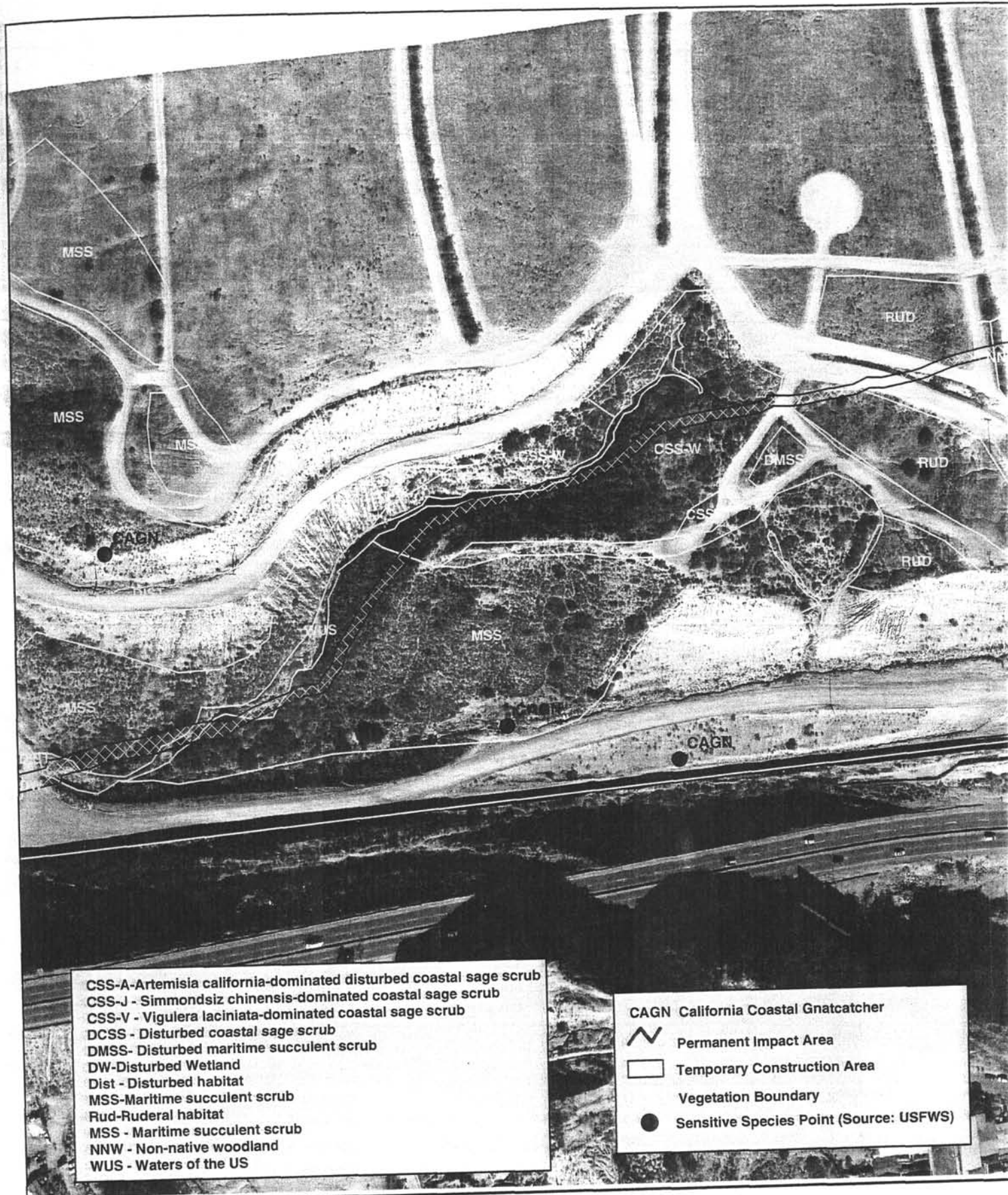
een Bunker Hill and Lichty Mesa

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RESEARCH  
CORPORATION

Exh 16 p. 4

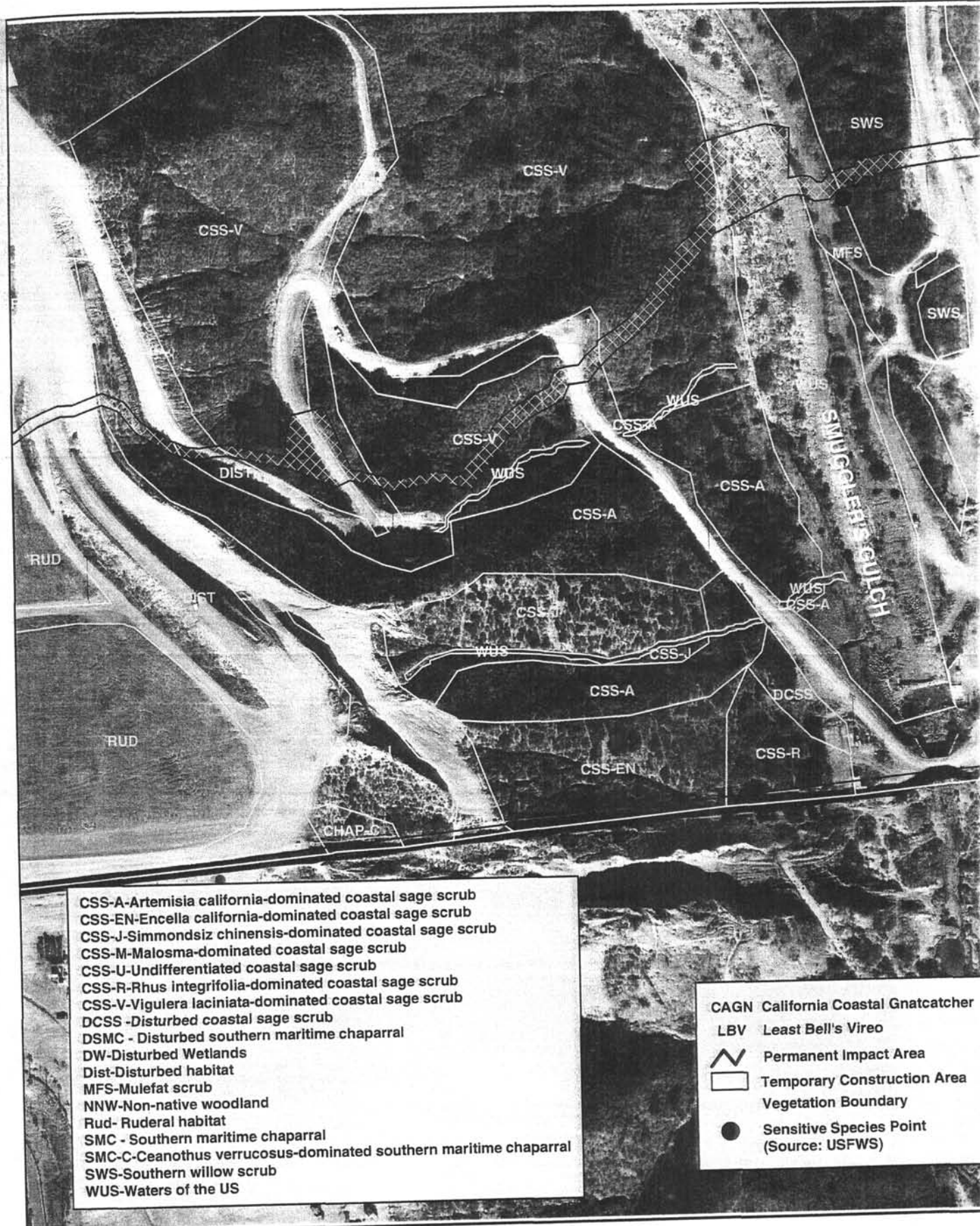
DATE: July 2002





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Figure 3-6. Vegetation Communities in Area V on Spooner

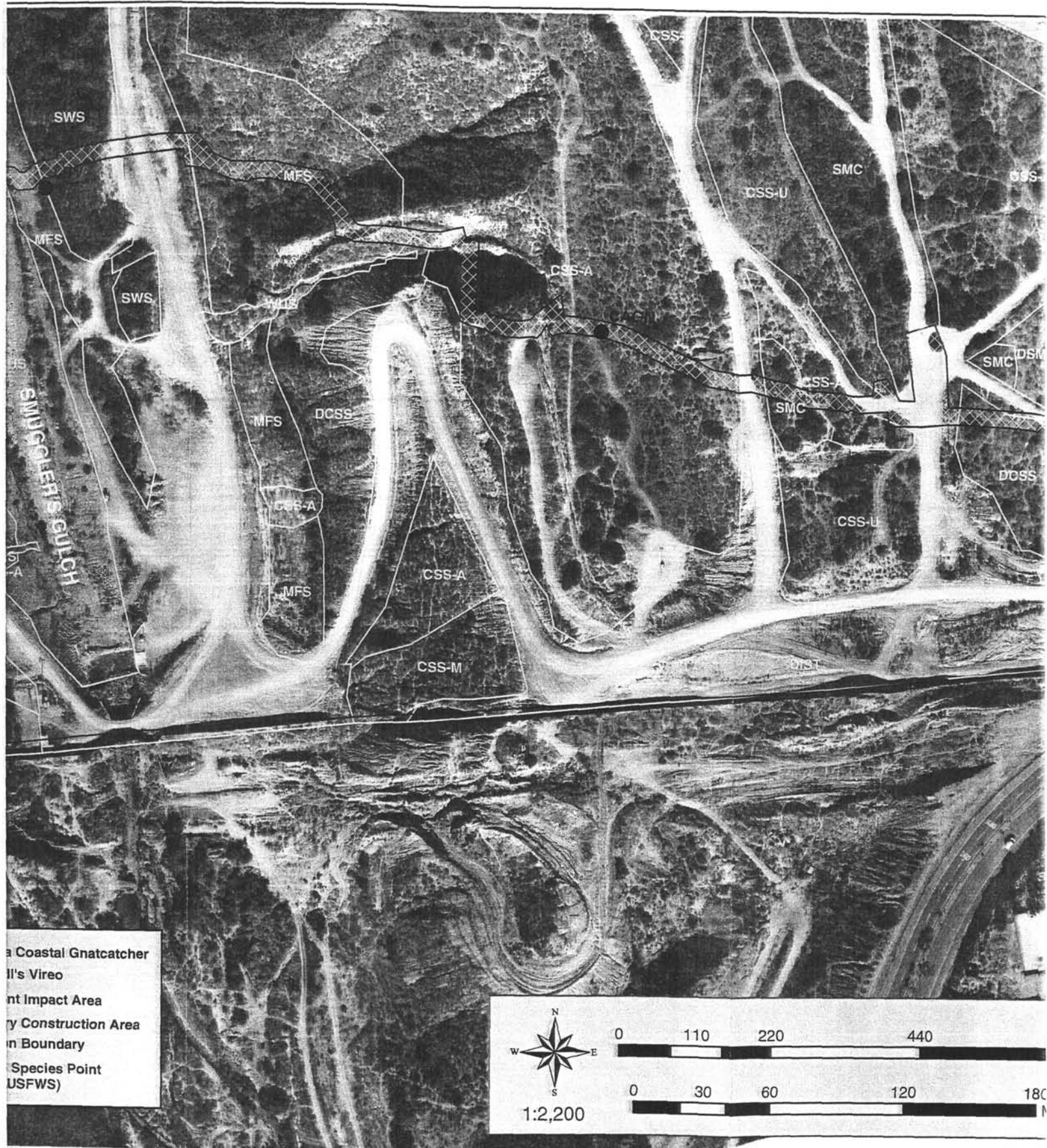


Ex H 16, p. 6

Figure 3-7. Vegetation Communities in Area V at Sn







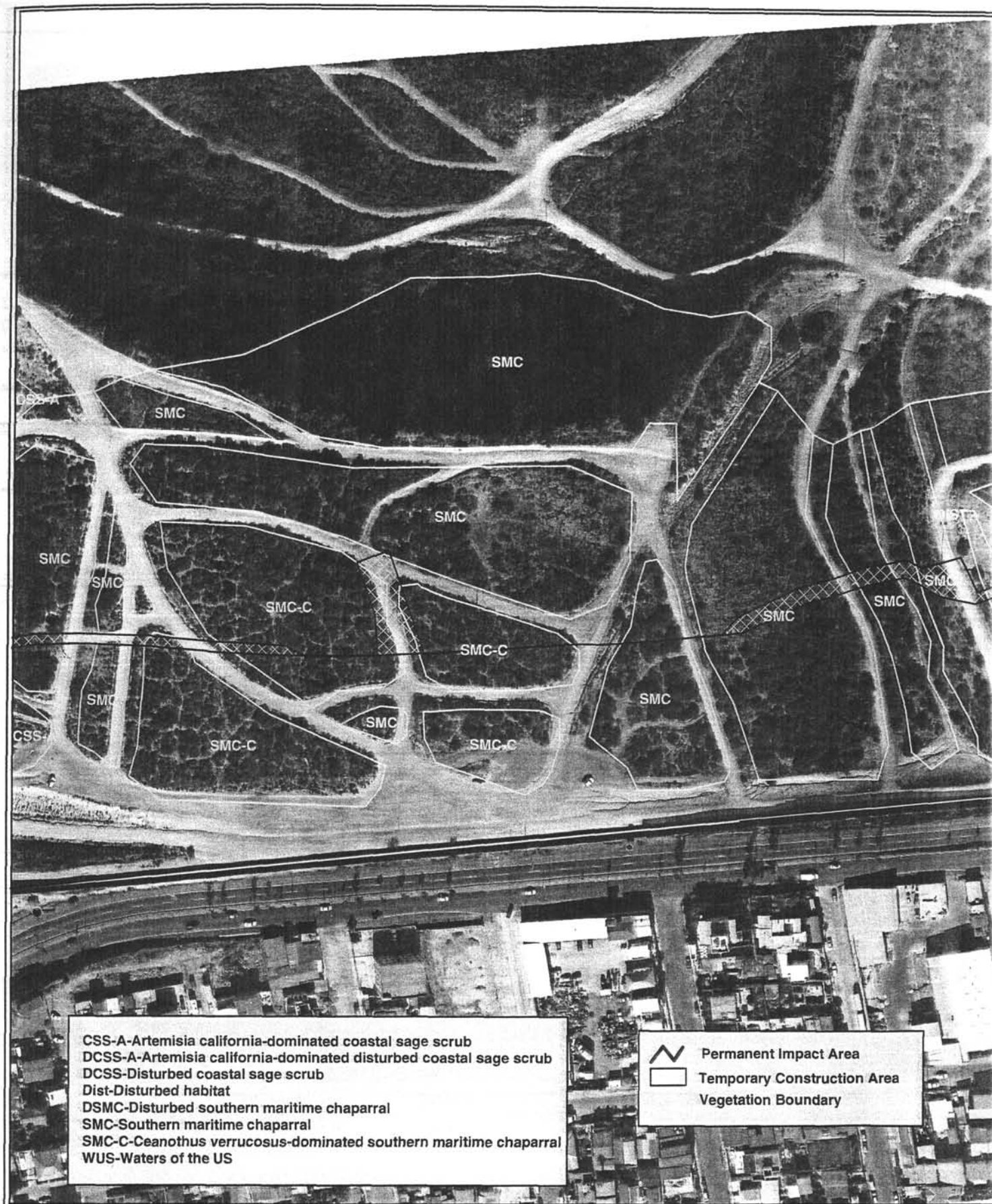
es in Area V at Smuggler's Gulch

Ex 11.16, p. 8

**gsr** GULF SOUTH RESEARCH CORPORATION

DATE: July 2003





Ex 16, p. 9

Figure 3-8. Vegetation Communities near the Eastern Er



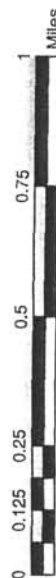
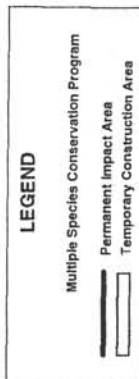
Western End of Area V

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Ex 4.16, p.10

DATE: July 2003





NOTE: All Areas are within the Multiple Habitat Planning Area

Figure 3-2. MSCP Lands within the Project Footprint (Source: SanGIS)

**gsr** | gulf south research corporation

DATE: July 2003

3-11

EXHIBIT NO. 17

APPLICATION NO.

CD-63-03

INSMSCP Lands

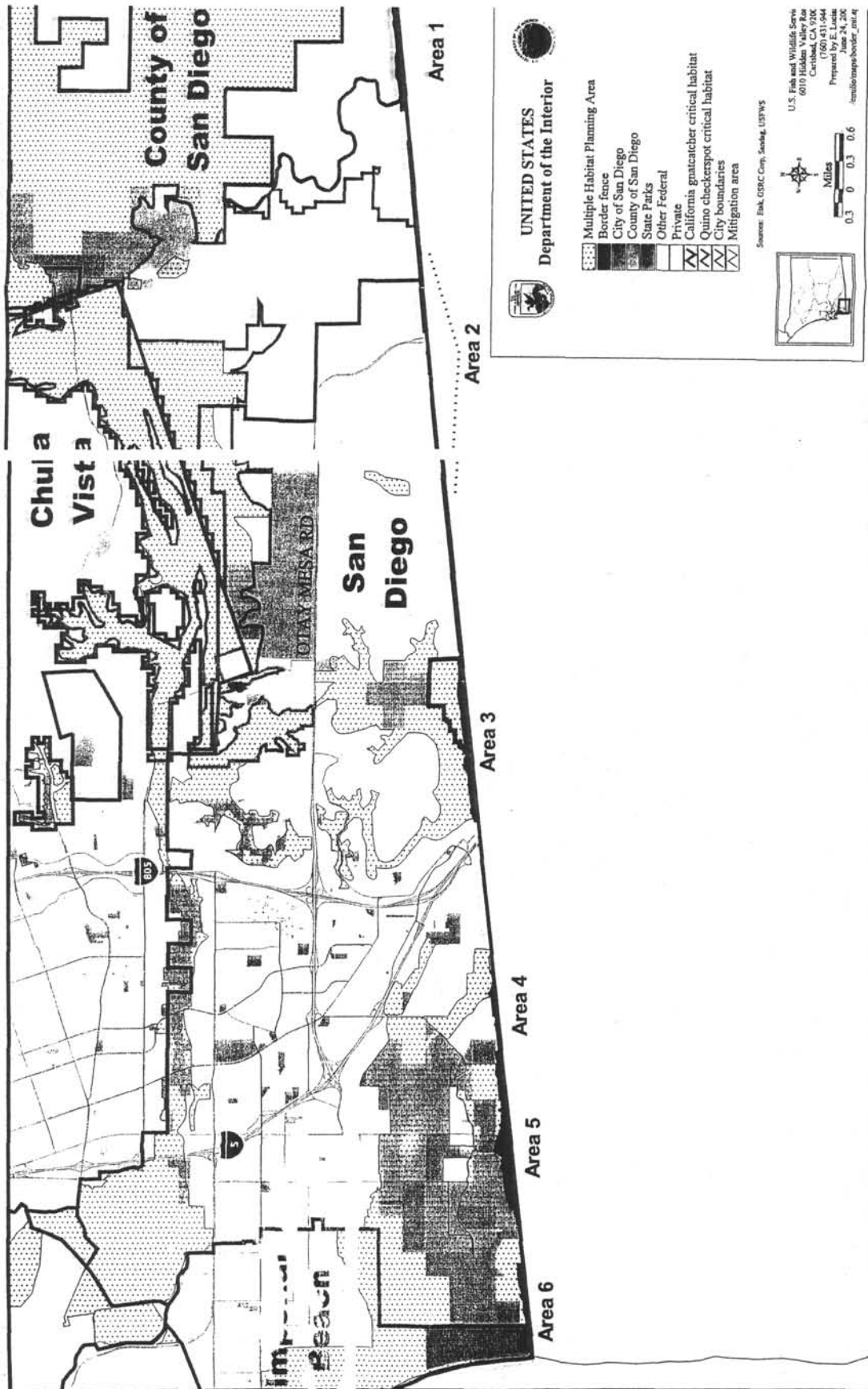
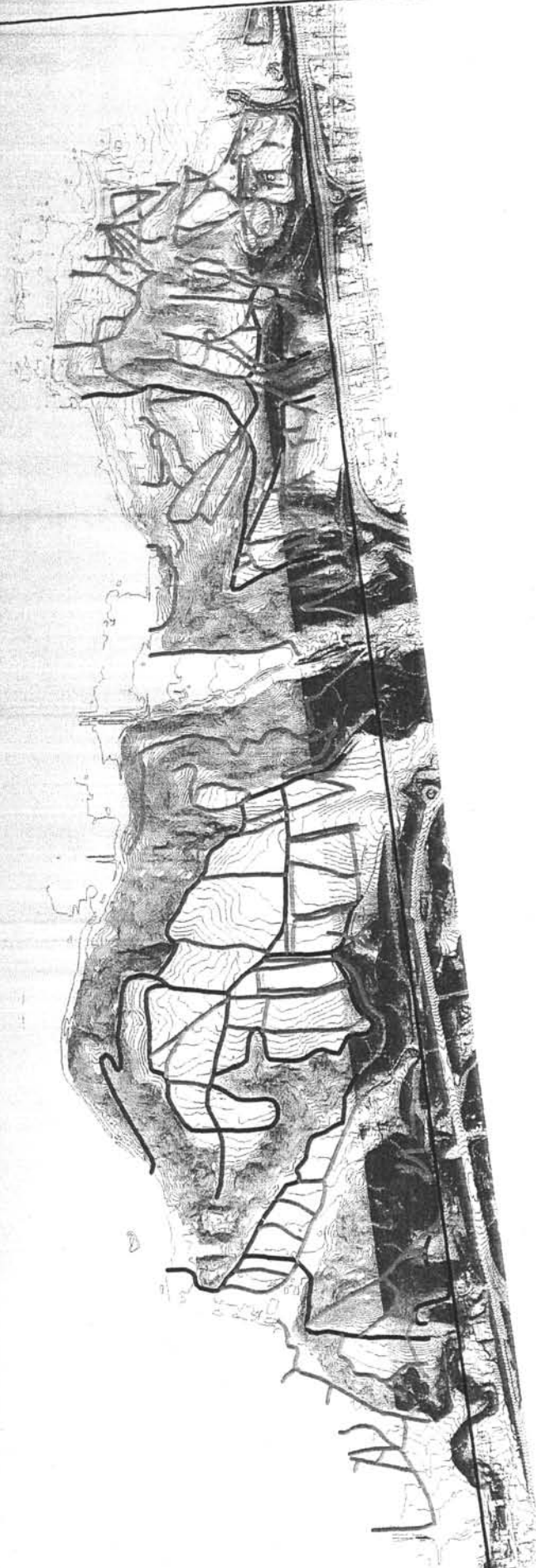


Figure 1. The 14 Mile Border Infrastructure System By Area





- Roads Border Patrol will continue to use
- - - Roads Border Patrol would abandon
- Contours
- International Border

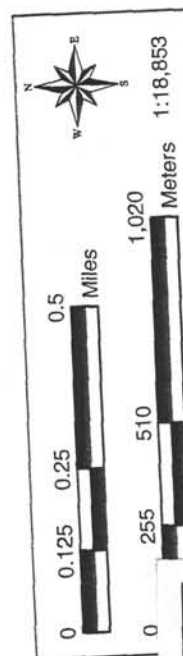


EXHIBIT NO. 18

APPLICATION NO.

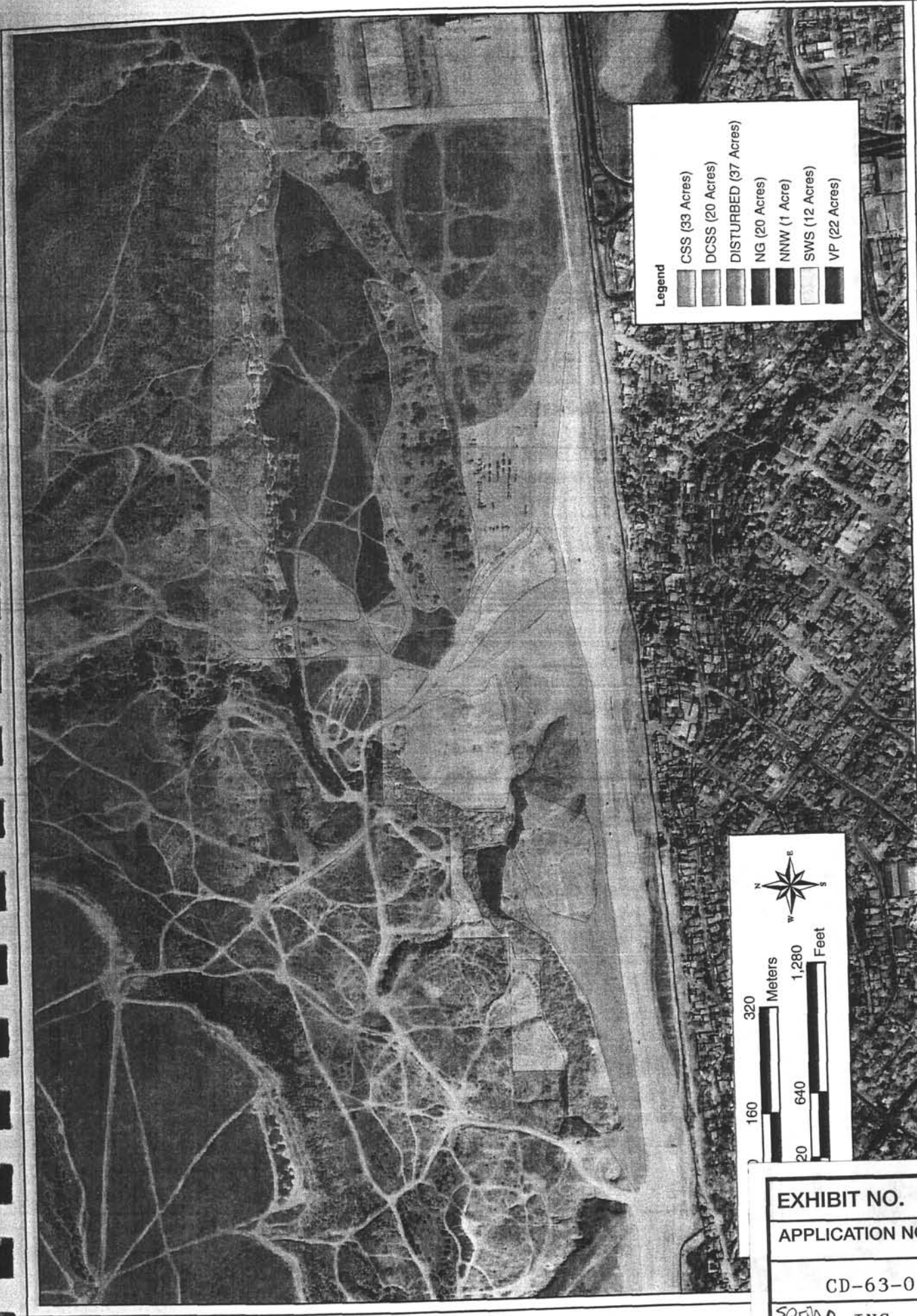
CD-63-03

Roads to be Abandoned

gersc. GULF SOUTH RESEARCH CORPORATION

Figure 5-4: USBP Roads to be Abandoned in Areas V and VI

Date: July 2003



- Legend**
- CSS (33 Acres)
  - DCSS (20 Acres)
  - DISTURBED (37 Acres)
  - NG (20 Acres)
  - NNW (1 Acre)
  - SWS (12 Acres)
  - VP (22 Acres)

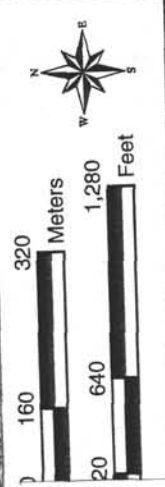


EXHIBIT NO. 19
APPLICATION NO.
CD-63-03
Spring Canyon INS Mitigation

Figure 5-1: INS Spring Canyon Mitigation Site



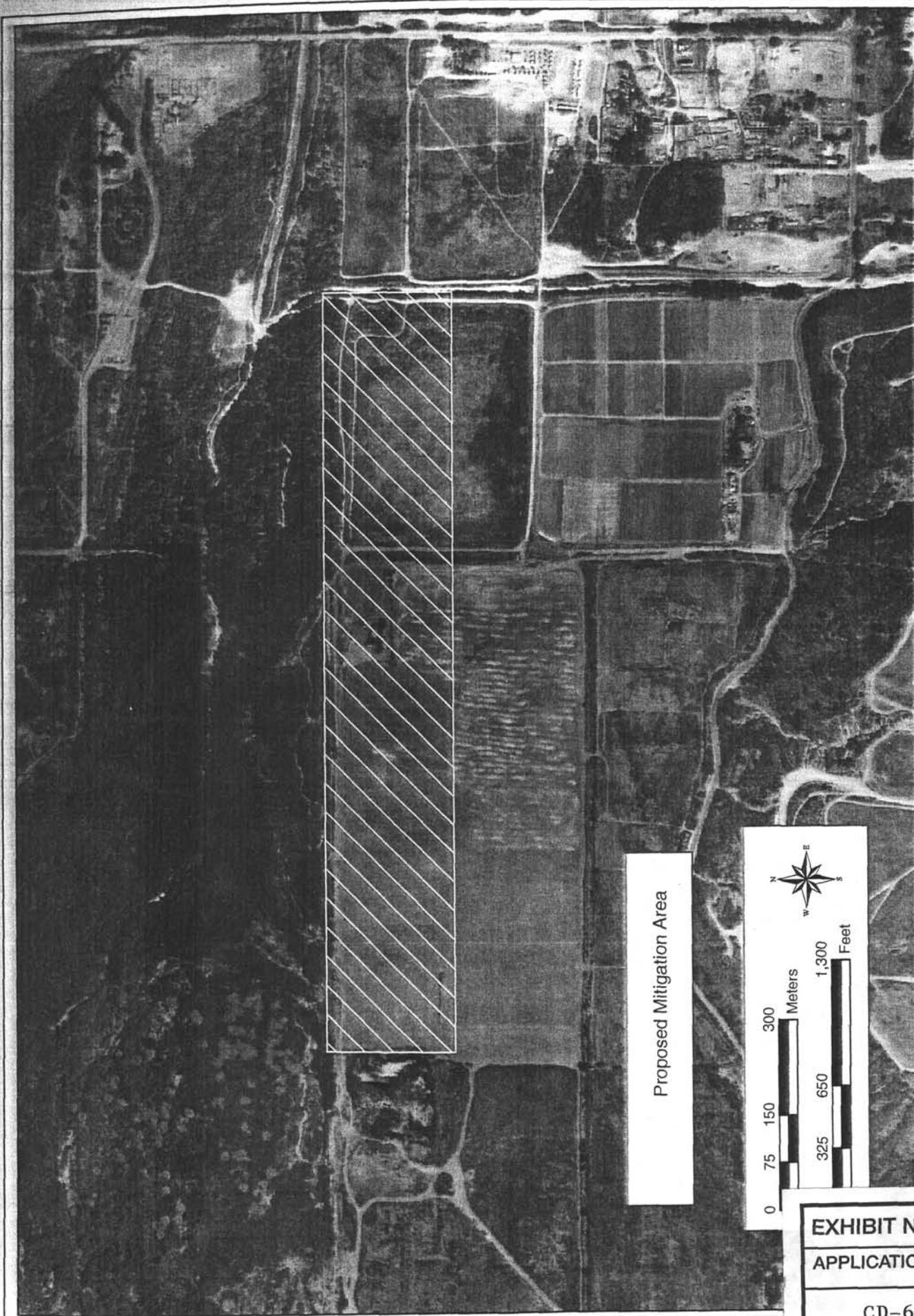


Figure 5-6. Potential Tijuana Valley Mitigation Area

EXHIBIT NO. 20

APPLICATION NO.

CD-63-03

Riparian <sup>INS</sup> Mitigation

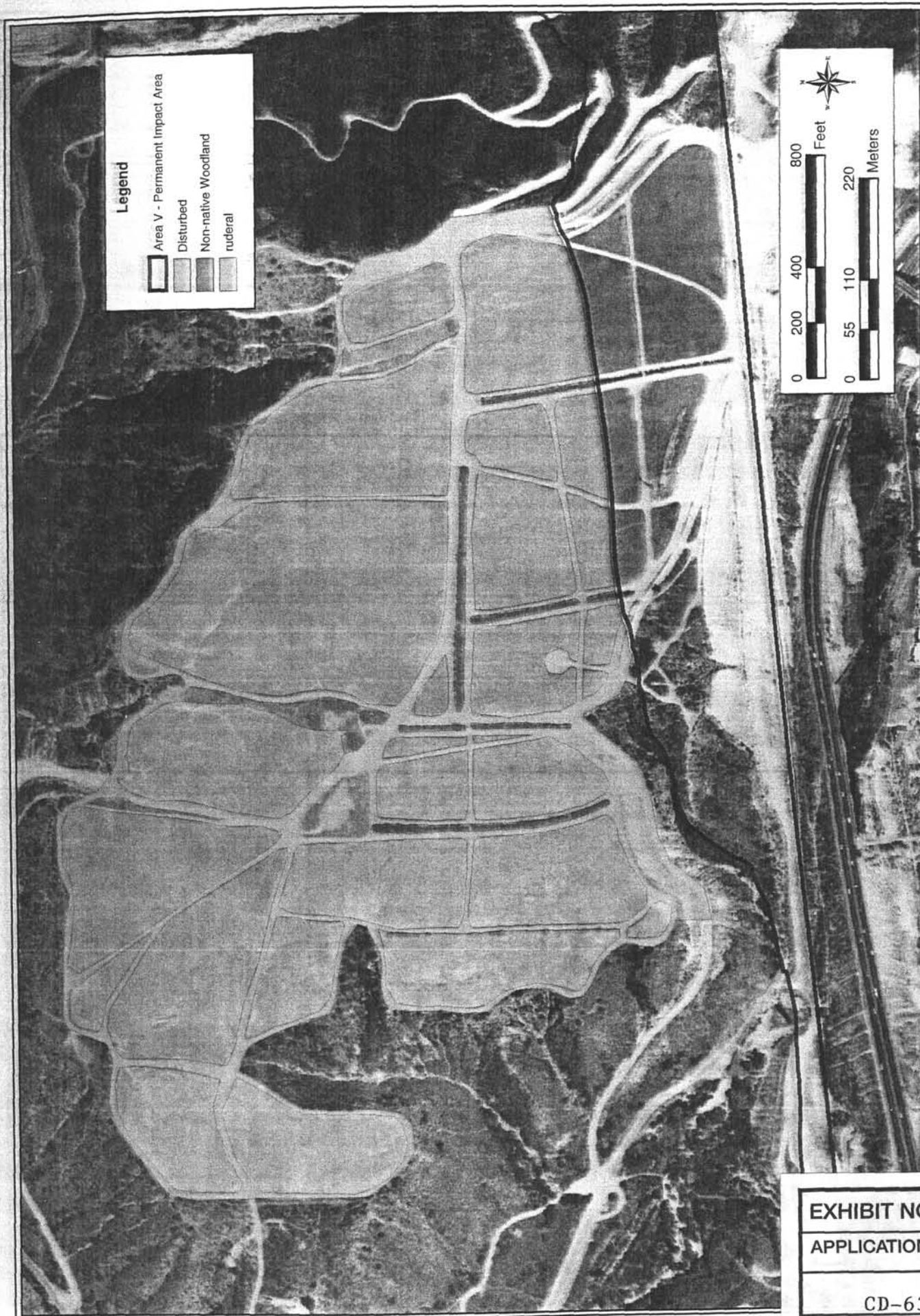


Figure 5-5. Areas Available for Mitigation at Spooner's Mesa

EXHIBIT NO. 21
APPLICATION NO.
CD-63-03
Spooner's Mesa Mitigation INS





PHILIP WILLIAMS & ASSOCIATES  
CONSULTANTS IN HYDROLOGY

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TEL 415.262.2300 FAX 415.262.2303  
SFO@PWA-LTD.COM

## DRAFT MEMORANDUM

**DATE:** 9/5/03  
**TO:** Mike Wells  
**COMPANY:** DEPARTMENT OF RECREATION AND PARKS  
**FROM:** Andrew Collison, PhD and Bob Battalio, PE  
**RE:** Border Fence EIS  
**PWA Ref. #:** 1684

This memo relates to the Environmental Impact Study (EIS) for the proposed San Diego 14-Mile Border Infrastructure System (BIS) in the Smuggler's Gulch area.

PWA was retained to review the Border Fence EIS and provide comments focused on the analysis and findings related to hydrology and sediment processes associated with the Smuggler's Gulch crossing. We were further tasked to carry out a review of selected portions of the EIS, namely general project description, hydrology and soils sections, and selected reports from the technical appendices.

In Smuggler's Gulch the proposed BIS will involve the construction of a new secondary and tertiary fence and the construction of an earthwork roadway across the canyon. To allow passage of flow through the canyon, a 650 ft long, 2-cell, 10 x 10 ft concrete box culvert is proposed, passing through the earthworks. Michael Baker Jr., Inc. carried out a sedimentation and erosion study for the Army Corps of Engineers (ACE), published in July 2003. This report is the primary source reviewed by this memo.

The objectives of Baker study were (page 4) "to address the potential sediment discharge from the proposed roadway embankment into the stream", "propose measures to reduce any sediment impacts...to ensure that the project does not result in a net increase in sedimentation."

### METHODS USED IN THE BAKER 2003 STUDY

The Baker study had two principal thrusts: firstly to assess the sediment yield from the project site and the channel bed under existing and project conditions and compare the two, and secondly, to compare the sediment yield from the project site with the yield from the watershed to assess the relative impact of the project. These objectives were addressed by:

1. Evaluating several methods of calculating watershed runoff under different storm conditions
2. Selecting a method using the ACE HEC-1 rainfall-runoff simulation model to predict a series of design events (flow discharges)

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SAN FRANCISCO

BOISE

ENVIRONMENTAL HYDROLOGY ~ FLUVIAL GEOMORPHOLOGY ~ WETLAND, RIVER & WATERSHED MANAGEMENT ~ COASTAL & ESTUARINE

EXHIBIT NO. 22

APPLICATION NO.

DPR: CD-63-03

Preliminary Hydrological  
INS Memo

3. Using the ACE HEC-RAS hydraulic model to calculate a suitable culvert size to pass the 100 year flow event
4. Using the ACE HEC-6 hydraulics and sediment transport model to assess the degree of channel erosion and deposition that will occur under existing and project conditions
5. Using the Modified Universal Soil Loss Equation (MUSLE) to predict sediment yield from the project site under present and project conditions
6. Using the MUSLE to estimate sediment yield from the rest of the watershed to provide a comparison with project sediment yield

### **COMMENTS ON THE METHODS AND PRINCIPAL FINDINGS OF THE REPORT**

#### **1. Design Flow**

##### **Report findings**

The 100-yr design flow was estimated to be 1525 cfs using HEC-1 and a Type B 24 hr storm, the same method used by PWA in the adjacent Goat Canyon study (PWA 2001).

##### **Comments**

There are numerous ways of estimating design flow, and the report discusses several, including the Rational Method (generally used on small watersheds up to 1 square mile), regional regression relationships between drainage basin area and discharge, and rainfall-runoff modeling. The report notes that these methods produce a wide range of estimated 100-year flows, from 875 cubic feet per second (cfs) for the regional regression to 1700 cfs for the Rational Method. The Baker report uses a HEC-1 rainfall-runoff model with five sub-watersheds to produce an estimate of 1525 cfs, which is relatively conservative given the range of values. Use of this methodology rather than the Rational Method is well justified given the size of the watershed (5.8 square miles). However, the result is quite low compared with the PWA (2001) report on neighboring Goat Canyon, a watershed of 4.6 square miles that generated an estimate of 2500 cfs for the 100 yr storm based on the same rainfall.

#### **2. Culvert size**

##### **Report findings**

The report used HEC-RAS to estimate the required culvert size underneath the embankment. They recommend a double-barrel 10 x 10 ft box culvert.

##### **Comments**

The HEC-RAS hydraulic model was used to calculate the size of culvert needed to pass the estimated 100-year flow without causing water to 'back up' into Mexico. This is a widely used standard method. The authors made a 25% allowance for hyper concentrated flows (flows containing a very large concentration of sediment), and a further safety margin allowance. The

culvert appears to be very well sized for the watershed type. There did appear to be an error in the input files; the report states that a Manning's  $n$  (friction coefficient) of 0.045 was used in the channel, and 0.05 in the out of bank areas (to allow for the effects of rougher vegetation). From input files in Appendix D it appears as though the values used were 0.05 for the bed and 0.045 for the banks. The culvert  $n$  value was 0.013, which is reasonable. The effects of miss-assigning roughness values in the channel will be slightly conservative for the culvert analysis (higher  $n$  values leading to more backing up, requiring a larger culvert opening).

### 3. Sediment transport capacity and channel erosion

#### Report findings

Under the 100-year flood the channel would have excess sediment transport capacity (more capacity than available sediment supply) leading it to incise by 5 ft upstream and aggrade by 1.5 ft near the estuary, resulting in a net sediment input of 2,101 tons of material from the channel area. Under the proposed plan channel incision was limited due largely to the 650 ft culvert, resulting in only 1,110 tons of sediment discharge.

#### Comments

The study uses the estimated design storm as an input in a HEC-6 sediment transport model. HEC-6 calculates flow hydraulics (flow depth, velocity etc) at cross sections along a channel profile, and uses these parameters to calculate sediment transport capacity in each reach (channel length between cross sections). Hydraulic data are supplemented by data on sediment input at the upstream boundary and the availability and size distribution of sediment in the channel cross-section. Where sediment transport capacity exceeds sediment input from the reach upstream, erosion occurs based on the availability of sediment in the bed and the tractive force of the flowing water. Where sediment transport capacity is less than the input of sediment from the next reach upstream, the difference between input and capacity is assumed to be deposited. This section of the report has two main sources of uncertainty: selection of a suitable sediment transport equation and estimation of the upstream sediment input. Selection of suitable sediment transport equations is notoriously difficult where calibration data are not available, since there are numerous equations and the estimated sediment transport is highly sensitive to the model chosen.

The authors have selected the Yang model which is used for sediment having a  $d_{50}$  (median particle size) less than 10mm. In this case the  $d_{50}$  is 0.5mm. There are several alternative models that could have been used, and it would be helpful to run several models and compare the result as a sensitivity analysis rather than rely on a single model. The Yang model is not highly rated in these circumstances (Reid and Dunne, 1996) and it is more advisable to use the Engelund-Hansen model or the Akers and White model. The Engelund-Hansen method was successfully used in the neighboring Goat Canyon study (PWA, 2001). The estimated sediment yield will vary considerably depending on which equation is selected.

Upstream sediment load was estimated since no data were available. The estimation method

involved iteratively changing the upstream sediment load until the first reach was in equilibrium, assuming that in these conditions the inflow was at maximum sediment transport capacity. This is a reasonable assumption to make under the circumstances.

As with the HEC-RAS analysis the Manning's n roughness values were miss-assigned, with in-channel values of 0.05 and out-of-bank values of 0.045. Though the difference in n value is small, this error slightly reduces the estimated sediment erosion from the channel, since model velocity will be lower than we would expect. However, it applies equally to both pre and post project conditions, so estimated changes in sediment yield are unlikely to be significantly wrong.

#### 4. Sediment yield from the project footprint

##### Report findings

The report used the MUSLE to account for sediment yield from the project footprint (presumed to be the earthen embankment) under the 100-yr event. This led to an estimate of 3391 tons for existing conditions and 2424 tons for the proposed project conditions. The decrease was due the assumption that erosion control measures on the embankment would be more effective under the project conditions, compared with current (bare ground) conditions (i.e. lower C factor and higher P factor in the MUSLE model).

##### Comments

It is very hard to understand exactly how the analysis was carried out from the results presented in Appendix I; a schematic map of the selected areas would clarify matters considerably. It appears as though the pre-project conditions assessment was based on the existing topography while the post-project condition is based only on the embankment. It appears as though the post-project assessment did not look at cut slopes above the embankment, which could be a significant source of erosion. There was also no assessment of dirt roads associated with the project, which could be a significant source of erosion and sediment. In selecting C values (crop factors) the analysis made the assumption that existing vegetation cover was 25%, and that future cover would be 0% but with the addition of erosion control measures that cover the ground surface with geotextile. The analysis is very sensitive to these assumptions. Based on photos in the EIS it appears that 25% cover is an underestimate of current conditions. There is thus the potential that the existing conditions assessment is overestimating sediment yield, making the post-project conditions look relatively more advantageous. Using the assumptions as they stand produces an estimated reduction in sediment yield of 40% under the project. Assuming the current vegetation has a 50% canopy cover results in almost no change under pre and post project conditions (1% reduction in erosion). Using a canopy cover of 75% for current conditions results in a 34% *increase* in sediment yield under the project (from 1,599 tons to 2,424). This would suggest an increase in sediment yield of 825 tons under the 100-year event. Assuming the same percentage change for average conditions (a valid assumption since the C factor is a straightforward multiplier in the MUSLE equation) the current average annual sediment yield would be 1,094



under the 25% cover assumed by the Baker report, 790 tons assuming 50% vegetation cover, and 516 tons with 75% cover. Post project yield would be 796 tons using the Baker report assumptions. Thus the project could potentially yield an additional 280 tons of sediment per year, ignoring the cut slope sediment yield and the potential for gully erosion (see below).

An additional concern is that the MUSLE only considers rill and inter-rill erosion; it ignores gully erosion. If gullies were to develop on either the embankment or the cut slope above it this could lead to a significant increase in sediment yield beyond that calculated by this analysis. Changing the assumption of greater erosion control due to slope terracing (the P factor) does not significantly affect the resulting estimate; the predicted sediment yield rises to from 2,424 to 2,694 tons under the 100-yr event if we assume the slope terracing is not effective.

In summary it seems possible that the current conditions estimate of sediment yield is an overestimation, while the post project conditions assessment may be an underestimation.

## 5. Sediment yield

### Report findings

Combining the results of the channel erosion assessment and the watershed sediment yield leads to a predicted 36% reduction in total sediment yield (channel plus project footprint) for the 100-yr event (assuming the assumptions outlined above are correct). The annual average sediment yield on this basis is predicted to be reduced by 27%. Using the MUSLE for the entire watershed gives an estimated sediment yield of 210,430 tons per year. The estimated average annual project related sediment yield of 796 tons is 0.4% of total watershed yield.

### Comments

This assessment of current watershed sediment yield is again based on a canopy cover of 25%. Using canopy cover percentages of 50% and 75% reduces estimated watershed sediment yield to 151,965 and 99,345 tons respectively. While this obviously raises the relative impact of the project (from 0.4% to 0.5% and 0.8% respectively) the increase is insignificant in percentage terms. Nonetheless, the amount of sediment generated by the project, and its proximity to the estuary is a potential cause for concern. There is also a cumulative effects issue; work by PWA and others has shown that the Tijuana Estuary is currently suffering from excessive sediment deliver rates from Smuggler's Gulch and Goat Canyon. If this project generates additional sediment loading, as seems possible, the cumulative impact will be made worse.

## EROSION CONTROL PROVISION

The Baker report contains provision for erosion control in two areas; source control on the earthen embankment and protection from accelerated channel flow from the 650 ft culvert. Permanent erosion control on the project will include a biodegradable geotextile, application of native vegetation seeds, terraces or benches on long slopes and sedimentation basins. Without more detailed plans and

specifications, and information on monitoring and maintenance, it is difficult to comment on the effectiveness of these measures for sediment control. We anticipate that there may be problems achieving vegetation establishment on the embankments due to the relatively harsh growing environment and soils, and that rill and gully development may be a problem. A particular problem is that if the geotextile biodegrades before vegetation becomes established, erosion potential on the embankment will almost double. Using the Baker report MUSLE model and a modified C value of 0.45 (no canopy cover, no geotextile) causes the average annual project sediment yield to rise from 796 tons per year to 1,493 tons. With regards to the energy dissipator at the downstream end of the culvert, there is a discrepancy between the velocity figure stated in the report (23 fps) and that used in the calculations for rip rap to protect the outfall (11.7 fps). Using the HEC-11 rip rap sizing equation the figure of 11.7 fps does give a mean diameter value of 0.88 ft, rounded up to 1 ft for safety. However, if the value used in the report is taken as correct, the required rock diameter rises to almost 7 ft. Likewise the length of channel armoring required is adequate assuming the appendix figures are used, but too small if the report figures are correct.

One potential area of concern is that the cut slope areas above the embankment may increase runoff source areas and create the potential for gully development.

### SUMMARY AND CONCLUSIONS

The report uses a series of well-known methods to evaluate sediment inputs from the proposed project. In general the choice of methods used is appropriate and represents good practice for this situation. In the section on channel hydraulics and erosion there are a small number of inconsistencies between the report and the models used, and at least some of these appear to be mistakes in the modeling rather than in the reporting (i.e. Manning's n values). The Manning's n values, if incorrect, are unlikely to seriously affect the report outcome for culvert sizing since they would make the analysis more conservative (indicate a larger than necessary culvert). There is also a potentially serious error in the calculations used for the culvert outlet, which needs to be checked. Despite this the conclusion of the channel erosion modeling appear to be generally valid, and increased channel erosion is unlikely to be an issue under the project conditions.

It is hard to assess the MUSLE soil erosion modeling based on the data presented. The predicted sediment yield from the embankment appears to be reasonable assuming that the erosion control measures are successful. The effect of erosion on the cut slopes appears not to have been modeled; if this is so it is a serious omission that needs to be rectified. The choice of canopy cover values under existing conditions seems low, and may have led to an overestimation of sediment yield under current conditions, and a corresponding underestimation of project impacts. The analysis shows that if erosion control measures on the embankment are not successful sediment yield from the project could almost double, generating an additional 700 tons of sediment per year. Combining these issues it seems quite possible that the project will increase sediment yield by several hundred tons per year.

The general conclusion of the report is that the project will have a small but positive effect on sediment yield to the Tijuana Estuary. This is questionable given the discussion above. The impact of the project on sediment yield in percentage terms is likely to be low given the magnitude of sediment yields from the rest of the watershed, but the absolute amounts of sediment could potentially be quite high, and would be located close to the estuary with a high chance of delivery. Sediment delivery to the estuary is presently well above natural levels, and is adversely affecting estuary wetlands. Hence, it is recommended that increased sediment yield should be avoided.

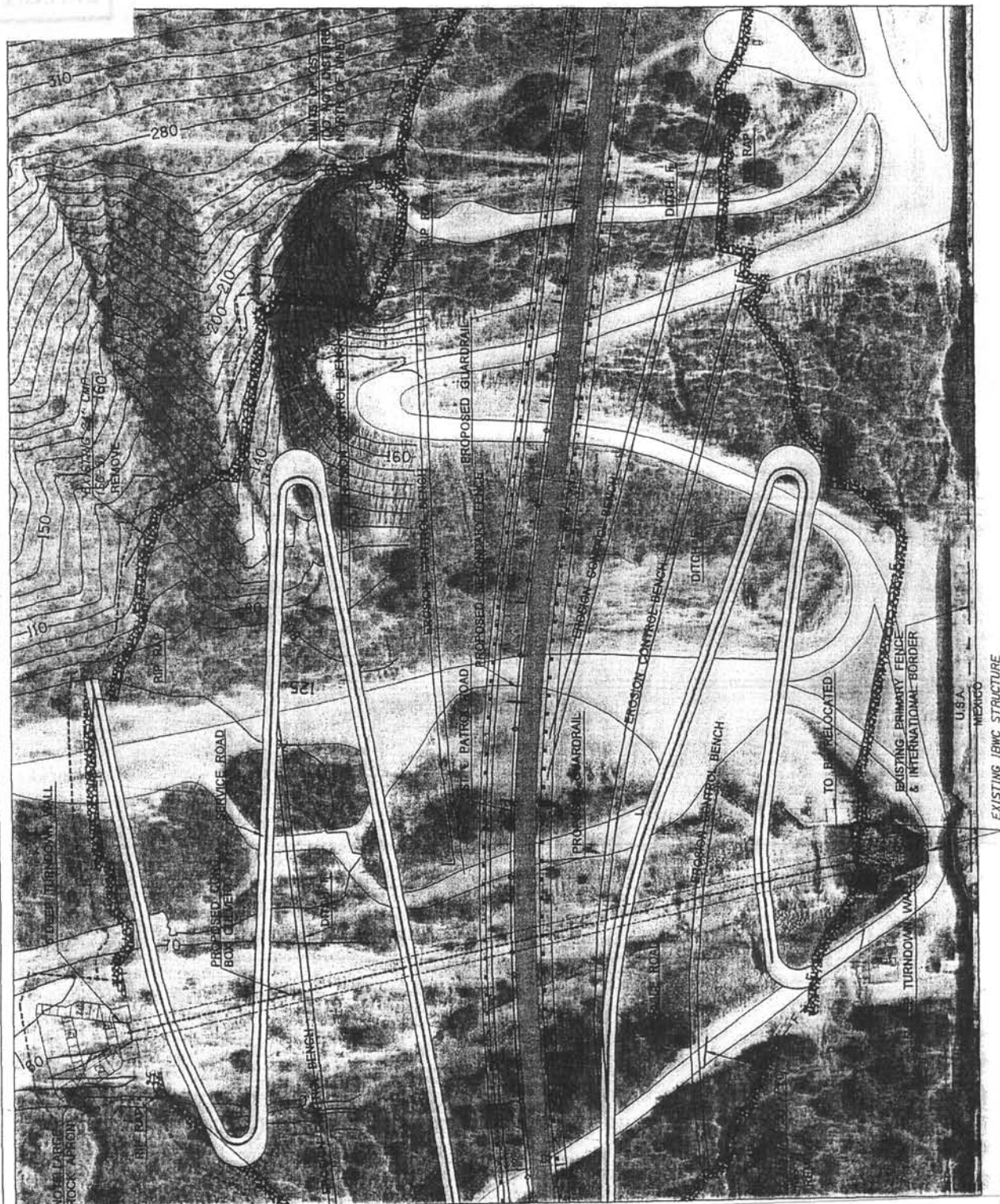
### **RECOMMENDED FURTHER STEPS**

Given the uncertainty and potential for alternative interpretation of the results, we recommend that an independent party repeat the MUSLE analysis. The analysis should incorporate all project areas and should contain a range of assumptions based on more realistic erosion control scenarios. It would also be advisable to have a ground geomorphic assessment of the project site to qualitatively assess the potential for sediment to be delivered to the estuary, and the effect of the culvert on the channel downstream.

### **REFERENCES**

- Michael Baker Jr., Inc., 2003, Smuggler's Gulch: sedimentation and erosion study  
Reid, L.M. and Dunne, T., 1996, Rapid Evaluation of Sediment Budgets, GeoEcology  
Philip Williams & Associates, 2001, Goat Canyon: sedimentation retention basin alternative development

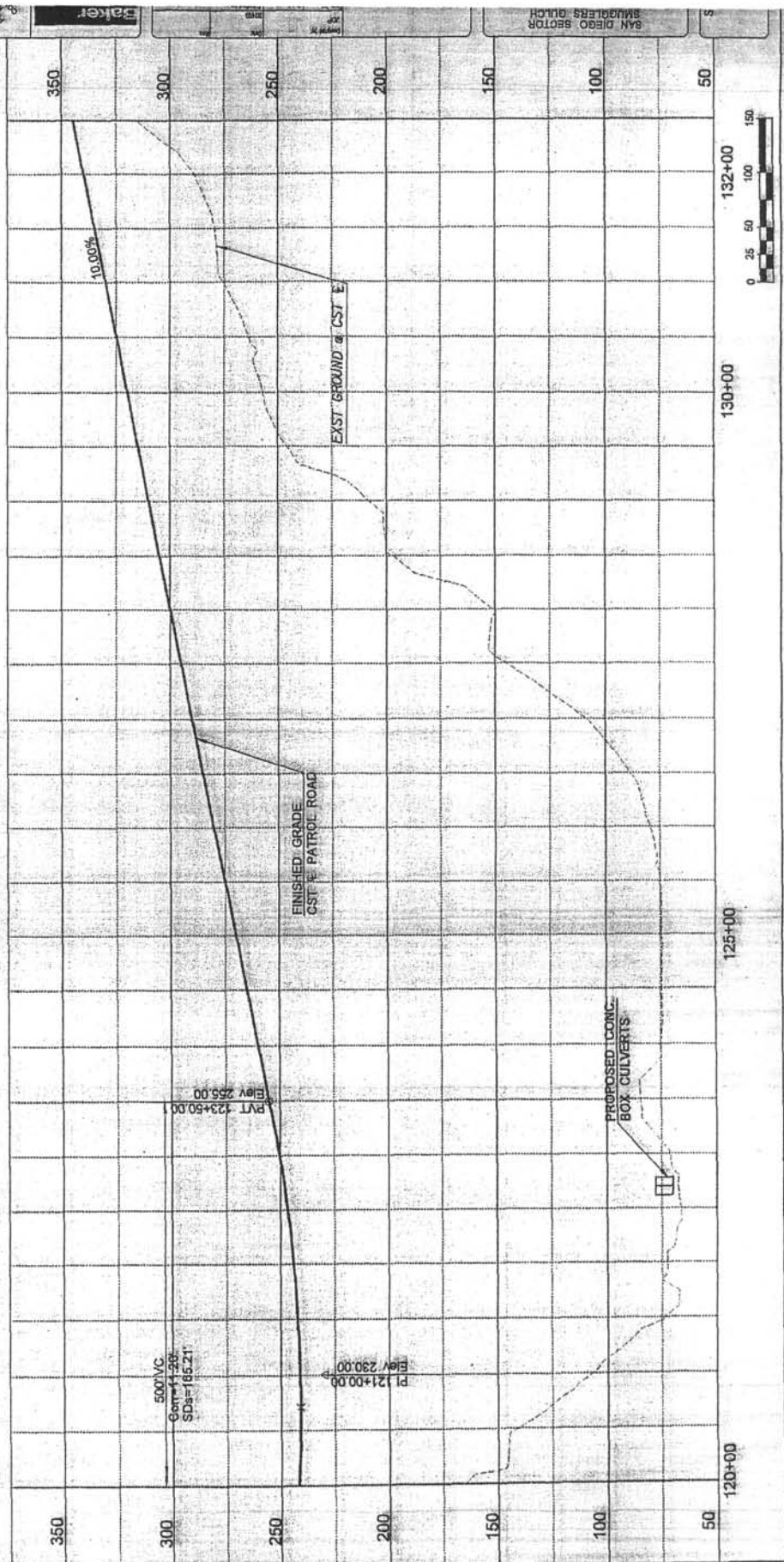
REPLY TO ACTION NO.



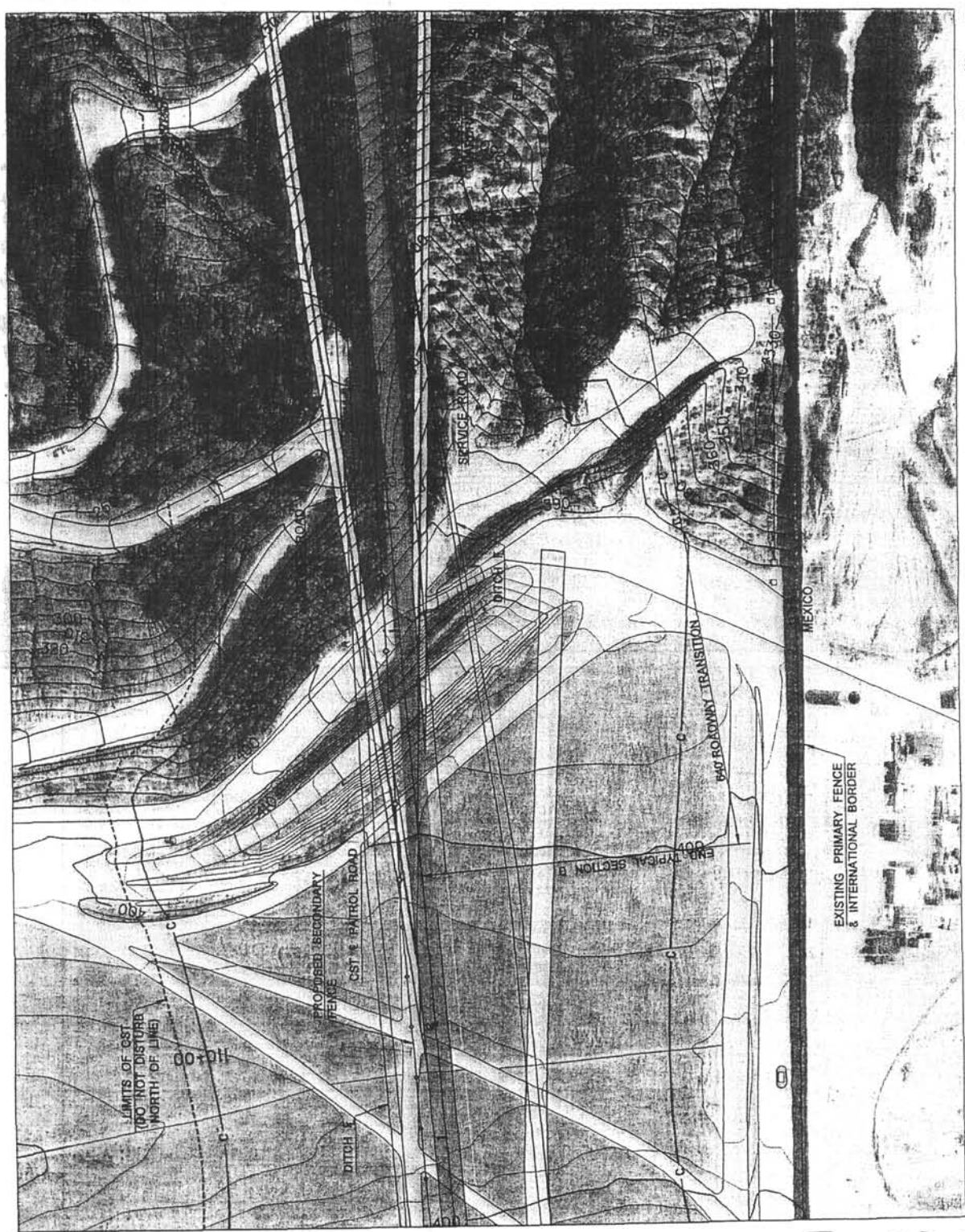
Smugglers <sup>INS</sup> Gulch Plan



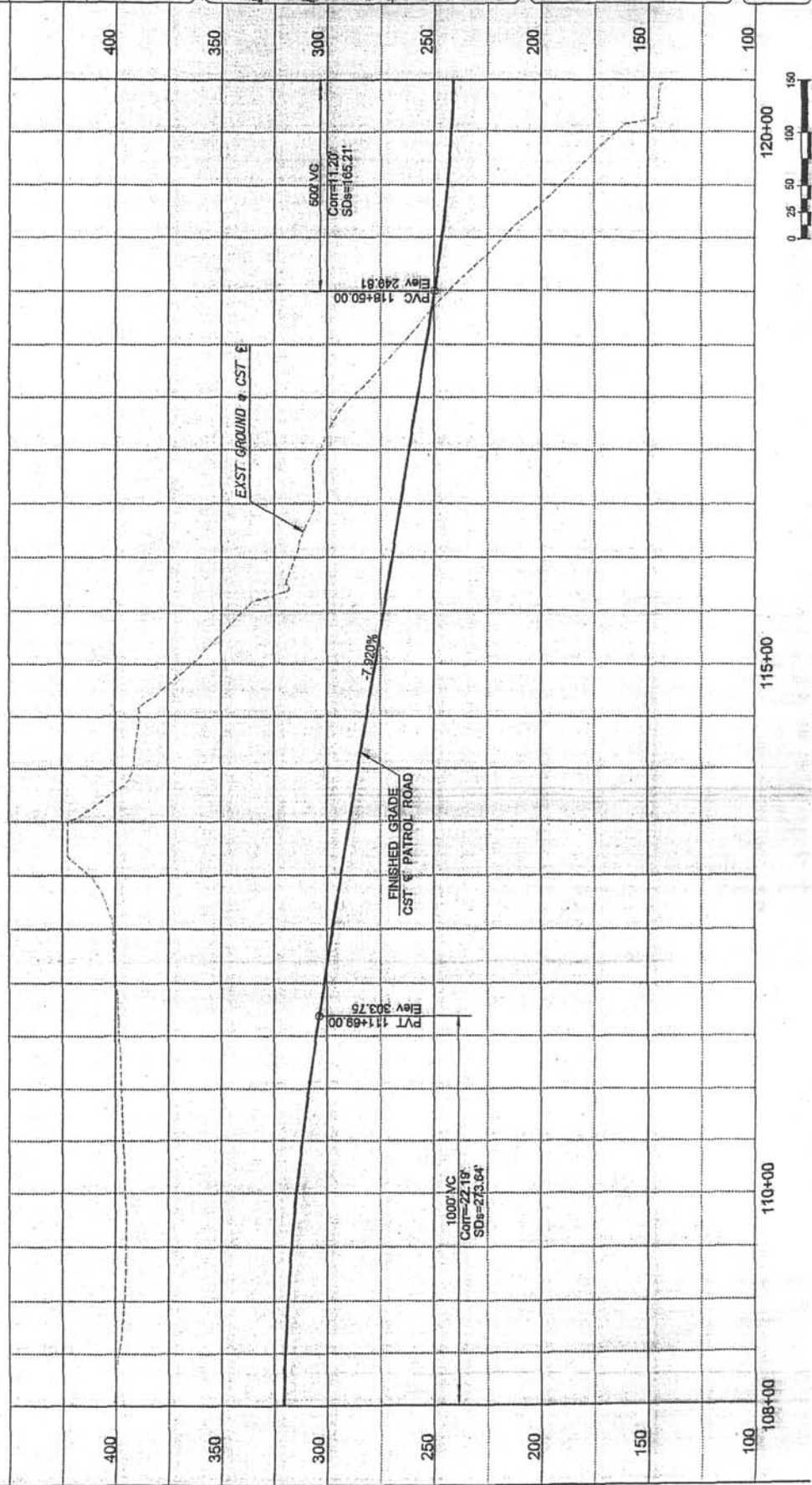
SEE SHEET 21  
FOR PLAN



EXH. 23, p. 2  
Smuggler's Gulch  
Cross section  
for P. 1



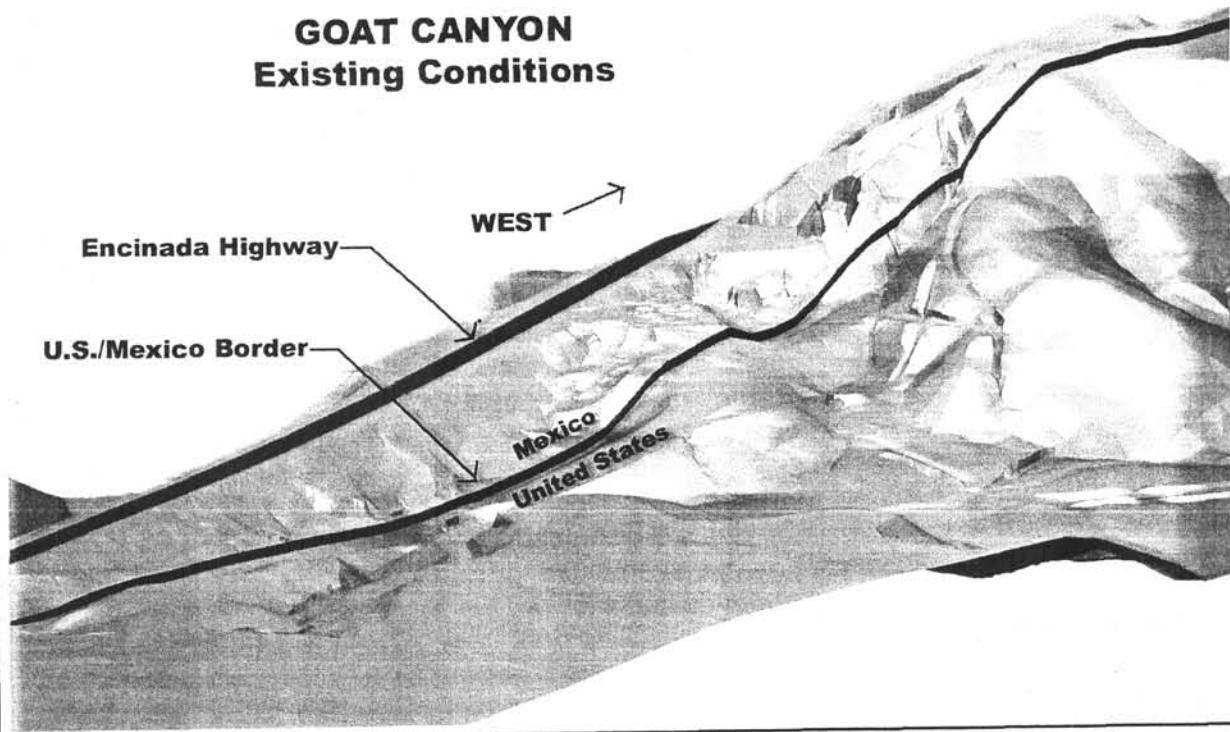
ExH. 23, p. 3  
 West side of Smuggler's Gulch  
 Plans

[illegible]

ExH. 23, p. 4  
Cross section (for p. 3)



# **GOAT CANYON** Existing Conditions



# **SMUGGLER'S GULCH** Existing Conditions

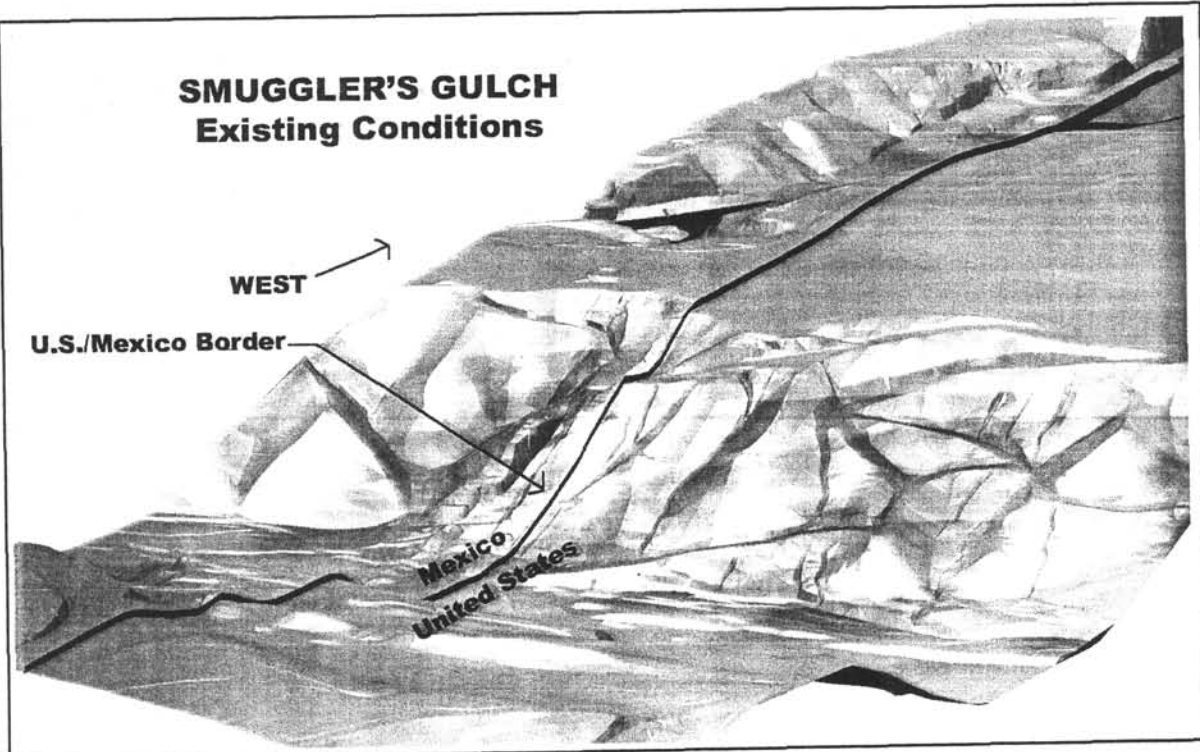


Figure 2-18. 3-D Topographic Map of Goat Canyon and Smuggler's Gulch (looking west)

EXHIBIT NO. 24

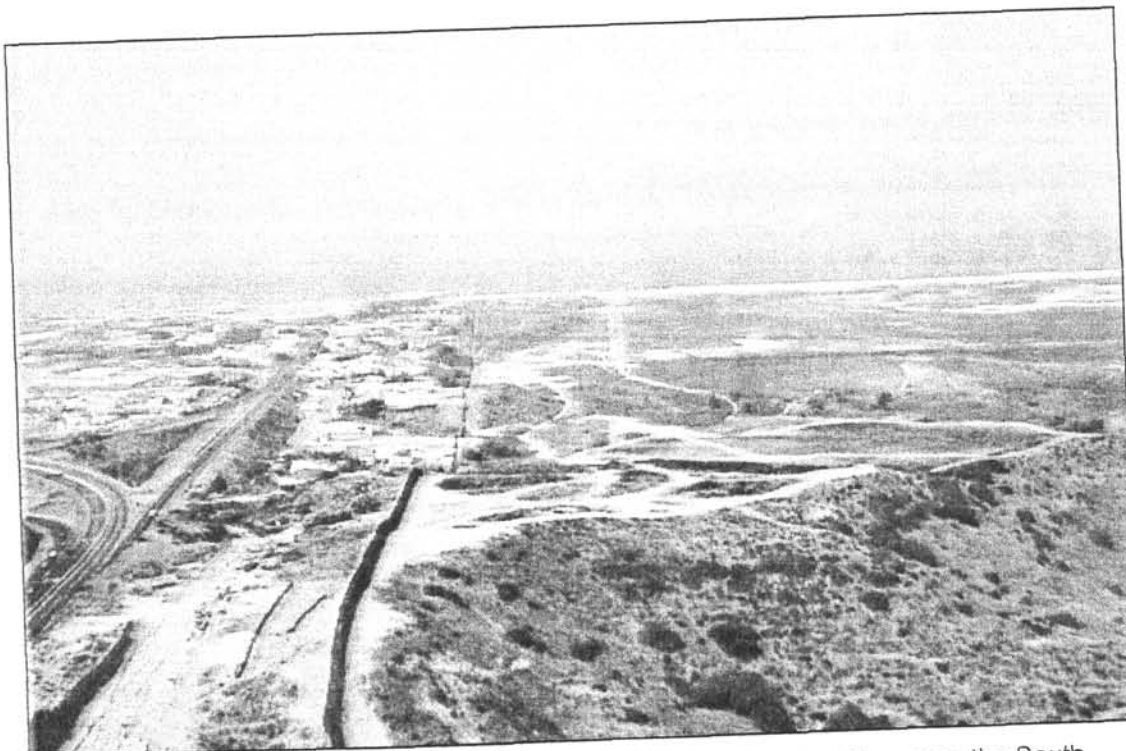
APPLICATION NO.

Canyon  
CD-63-03

Compass  
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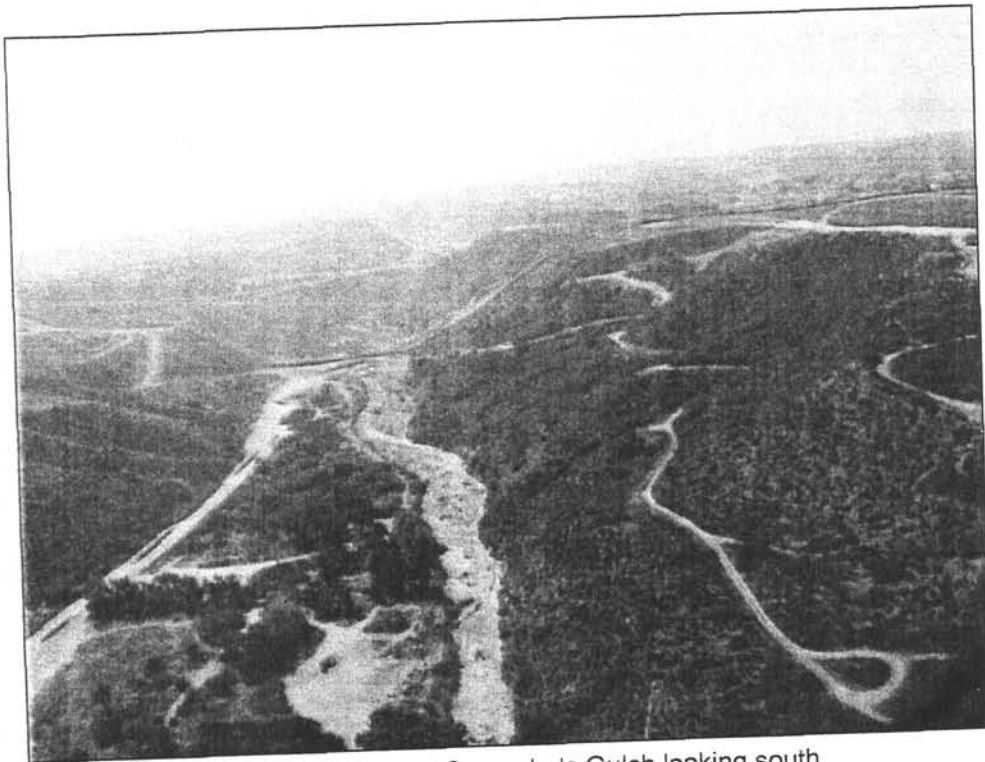


Photograph 2-1. View Looking West at Bunker Hill Depicting Steep Slopes on South Side

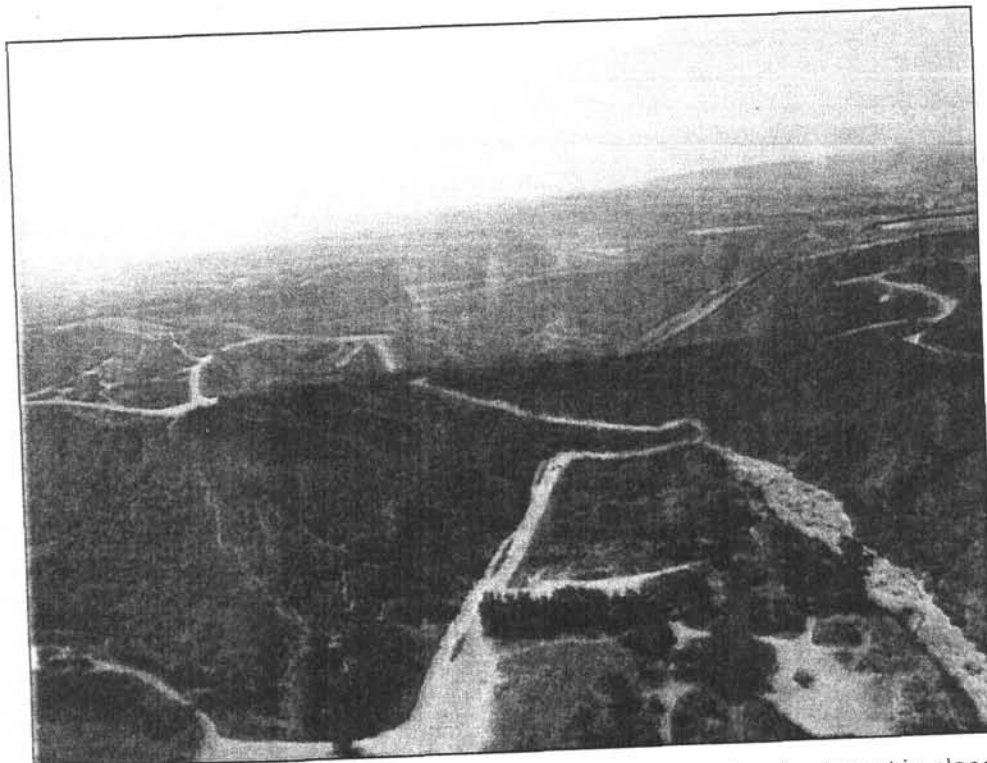


Photograph 2-2. Aerial view of Bunker Hill Depicting Steep Slopes on the South Side and Low Density of Vegetation.

*Bunker Hill / Goat Canyon*



A. Current view of Smuggler's Gulch looking south.



B. View of Smuggler's Gulch looking south with proposed embankment in place.

**Figure 2-10. Photos providing a Conceptual Depiction of the Proposed Embankment**



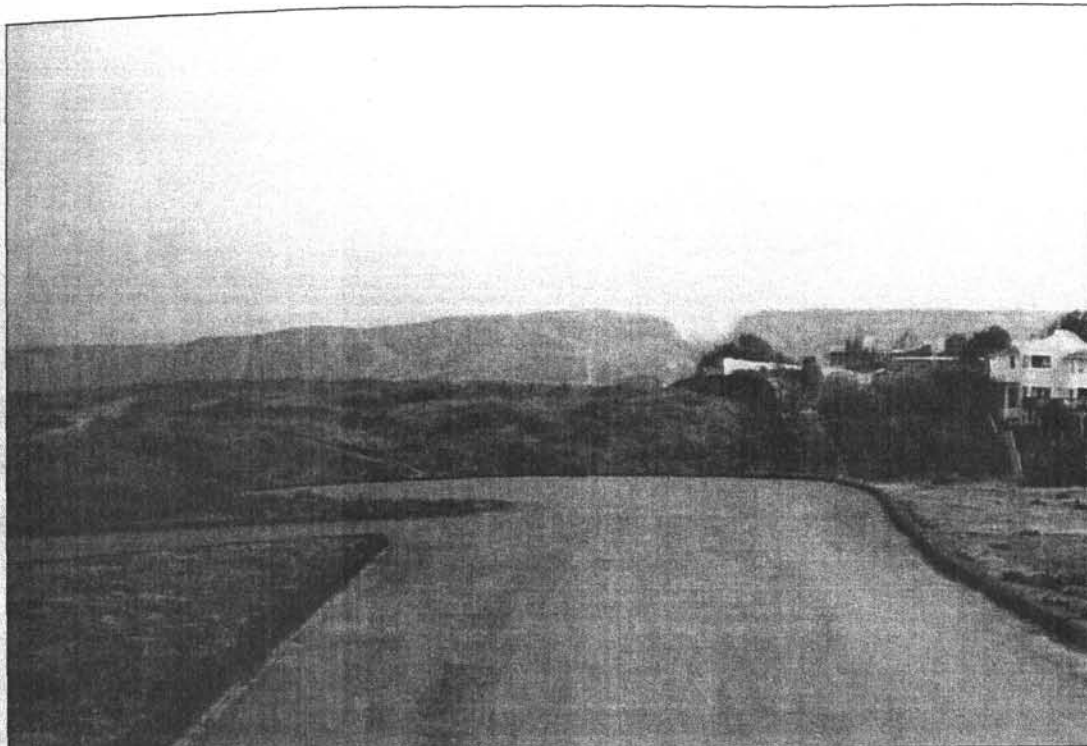


Photo J-1: View of Borderfield State Park before construction.

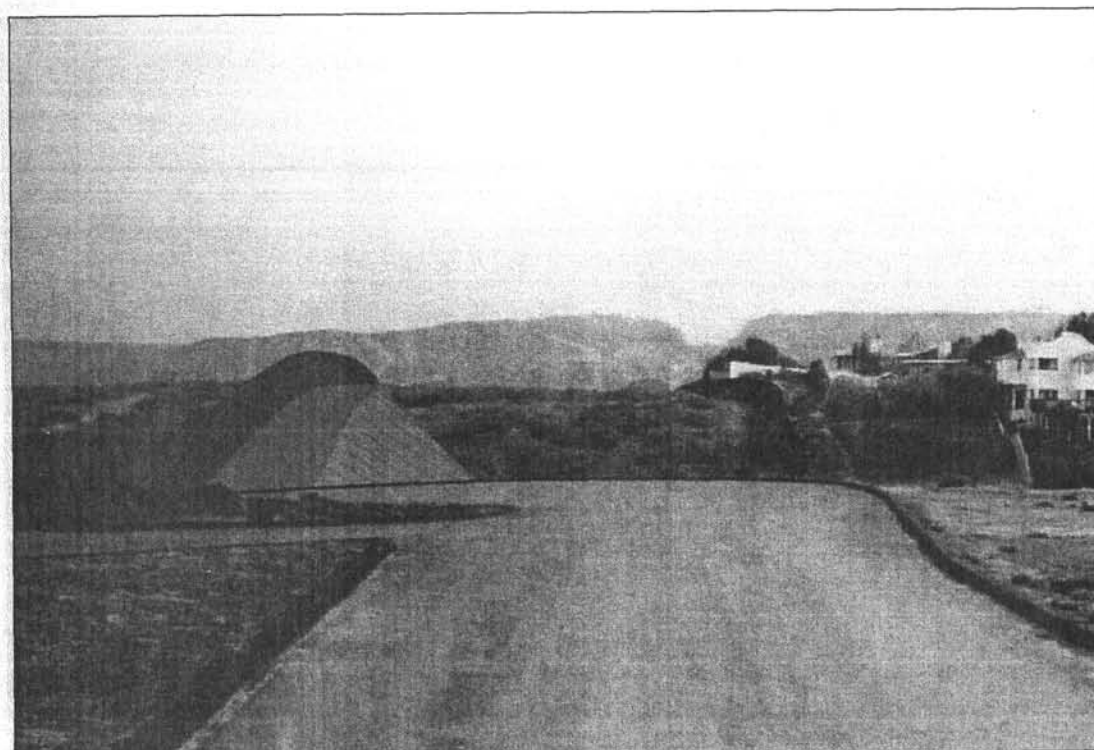


Photo J-2: Conceptual view of Borderfield State Park after construction.

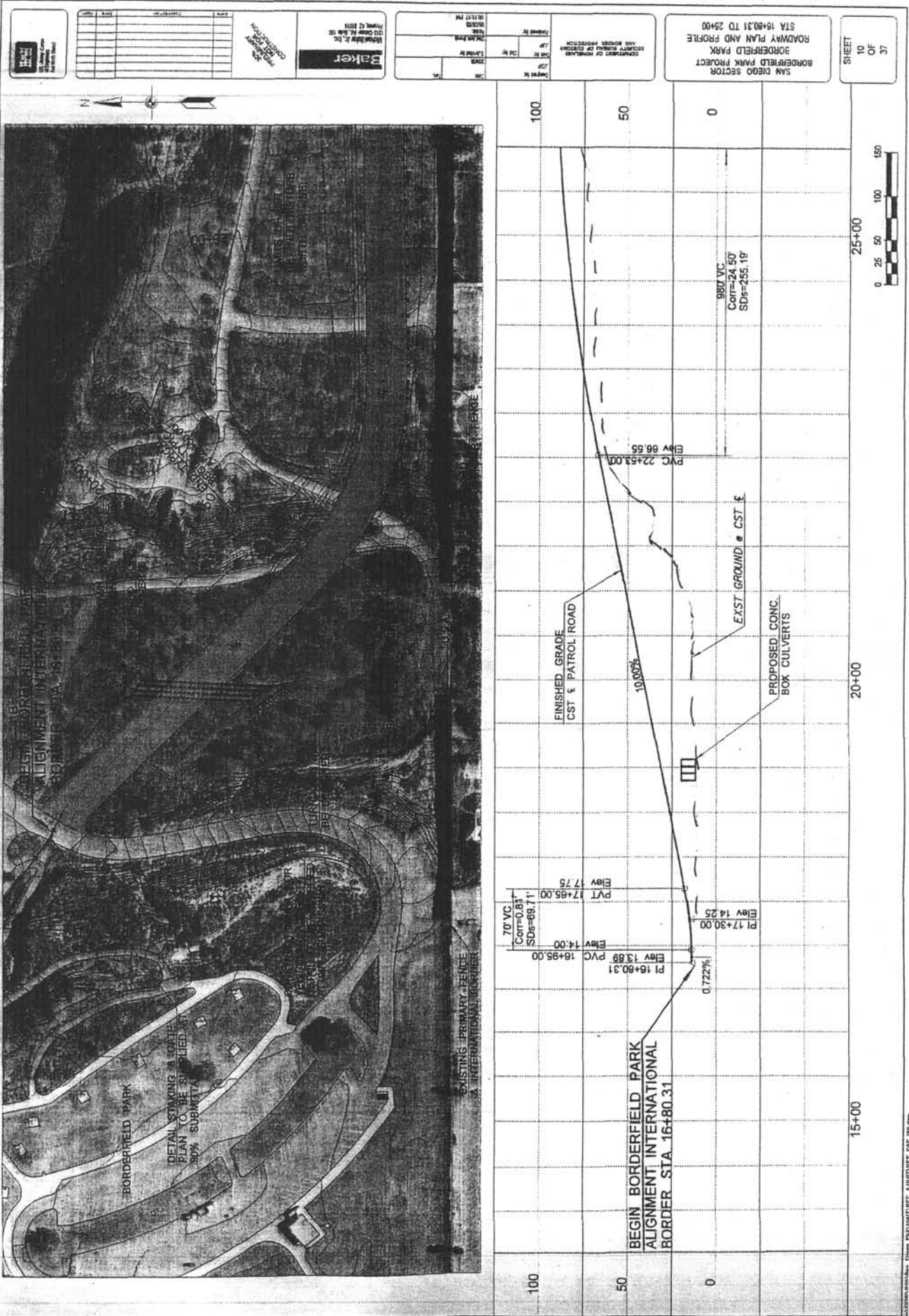
Monument + Lichty Mesas  
+ Yogurt Canyon

EXHIBIT NO. 25

APPLICATION NO.

CD-63-03

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EXH. 25, P. 2  
 Monument  
 Light Mesas





## **Grading, Drainage, and Erosion Control Plan: During Construction**

(Or the **Storm Water Pollution Prevention Plan**, using RWQCB's terminology)  
The plan must contain the following components:

### **Erosion & Sediment Source Control**

- Sequence construction to install sediment-capturing devices first, followed by runoff control measures and runoff conveyances. Land clearing activities should only commence after the minimization and capture elements are in place.
- Time the clearing and grading activities to avoid the rainy season wherever appropriate.
- Minimize the area of bare soil exposed at one time (phased grading).
- Clear only areas essential for construction.
- Depending on storm frequency, bare soils should be stabilized with nonvegetative BMPs within five days of clearing or inactivity in construction. If seeding or another vegetative erosion control method is used, it should become established within two weeks.
- Properly grade construction entrances to prevent runoff from construction site. The entrances should be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.
- In areas prone to high winds, implement wind erosion controls to limit the movement of dust from disturbed soil surfaces.

### **Runoff Control and Conveyance**

- Intercept runoff above disturbed slopes and convey it to a permanent channel or stormdrain by using earth dikes, perimeter dikes or swales, or diversions. Use check dams where appropriate.
- Construct benches, terraces, or ditches at regular intervals to intercept runoff on long or steep slopes. Biodegradable fiber rolls are recommended along the face of exposed and erodible slopes to shorten slope length.
- Provide protection for runoff conveyance outlets by reducing flow velocity and dissipating flow energy. A riprap-lined apron is the most commonly used practice.

### **Sediment-Capturing Devices**

- Install stormdrain inlet protection that traps sediment before it enters the storm sewer system. This barrier could consist of filter fabric, gravel, or sand bags. The use of straw bales is discouraged for this purpose.
- Install sediment traps/basins at outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water. Sediment traps are usually used for drainage areas no greater than 5 acres, while the basins are appropriate for larger areas. Sediment traps/basins should be cleaned out when 50% full (by volume).
- Use silt fence and/or vegetated filter strips to trap sediment contained in sheet flow. The maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. Silt fences should not be used on slopes or in streams or channels where flow is concentrated. They should be inspected regularly and sediment removed when it

Water Quality  
Measures  
Requested by CCC staff

EXHIBIT NO. 26

CD-63-03

reaches 1/3 the fence height. Vegetated filter strips should have relatively flat slopes and be vegetated with erosion-resistant species.

#### Chemical Control

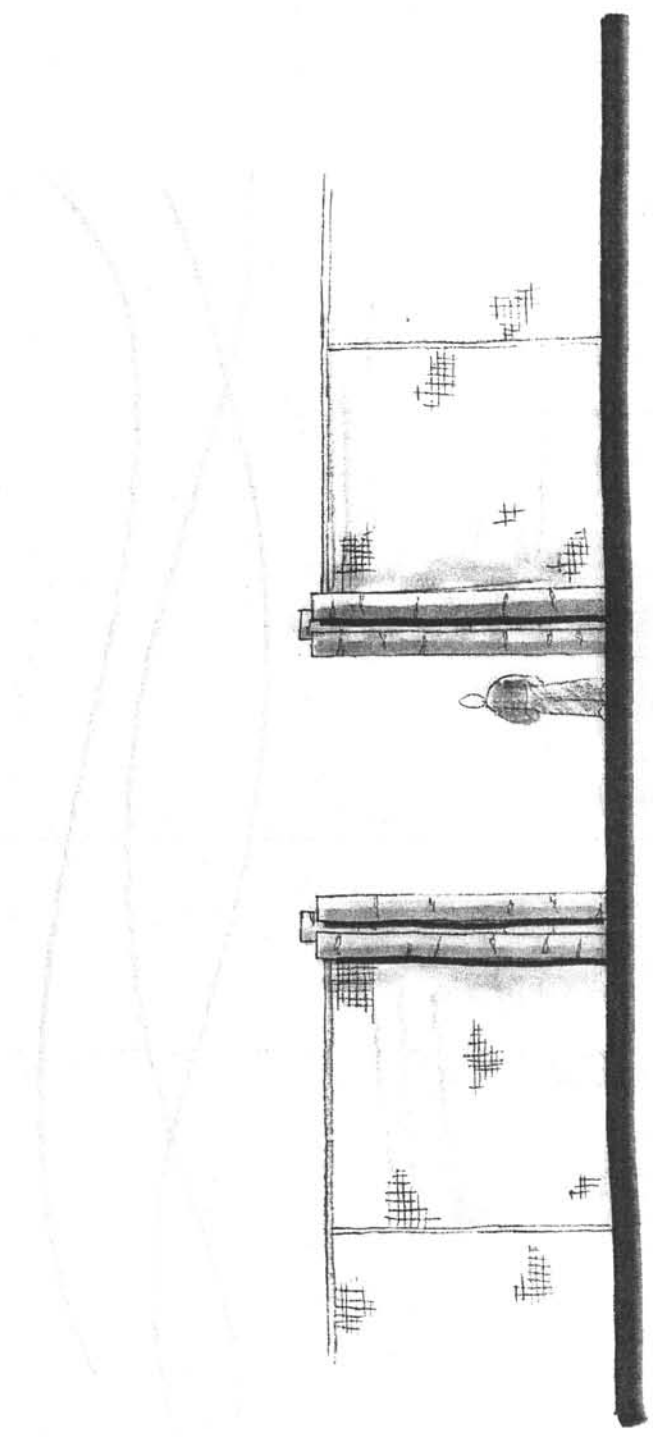
- Store, handle, apply, and dispose of pesticides, petroleum products, and other construction materials properly.
- Conduct fueling, major maintenance/repair, and washing off-site whenever feasible.
- Establish fuel and vehicle maintenance staging areas located away from all drainage courses, and design these areas to control runoff.
- Regularly maintain and inspect vehicles and equipment for damaged hoses, leaky gaskets, or other service problems.
- Use drip pans/drip cloths if necessary to drain and replace fluids on-site.
- Develop and implement spill prevention and control measures.
- Provide sanitary facilities for construction workers.
- Maintain and wash equipment and machinery in confined areas specifically designed to control runoff. Only use water for any on-site cleaning. Do not use soap, solvents, degreasers, steam cleaning, or similar methods.
- Washout from concrete trucks should be disposed of at a location not subject to runoff and more than 50 feet away from a stormdrain, open ditch or surface water. When possible, recycle washout by pumping backing into mixers for reuse. If not feasible, let water percolate through soil and dispose of settled, hardened concrete with trash.
- All stockpiled materials or wastes prone to running off or subject to wind erosion must be covered.
- All potential staging/storage areas must be clearly labeled on project plans.
- Provide adequate disposal facilities for solid waste, including excess asphalt, produced during construction.
- Develop and implement nutrient management measures. Properly time applications, and work fertilizers and liming materials into the soil to depths of 4 to 6 inches. Reduce the amount of nutrients applied by conducting soil tests to determine site nutrient needs.

#### General Requirements

- Educate all construction personnel on all construction related BMPs. The training must be repeated every time new construction personnel arrive on-site.
- Submit a grading schedule.
- All proposed structural BMPs must be clearly labeled on project plans.
- A narrative description must be provided for all proposed BMPs.

### **Water Quality Control Plan: Post Construction (WQCP)**

- Clearly describe and label, on the project plans, BMPs to treat or infiltrate runoff from created impervious surfaces (i.e., patrol and maintenance roads) and to discharge the runoff in a manner that avoids erosion, gullyng on or downslope of the subject site, discharge of pollutants (e.g., oil, heavy metals, toxics) to surface waters or drainage courses, or other potentially adverse impacts.
- Sheet-flowing of runoff over naturally pervious areas adjacent to the created impervious surfaces is permitted provided that it does not result in erosion, gullyng, or the discharge of pollutants to surface waters or drainage courses, or other potentially adverse impacts.
- Notwithstanding the above, runoff resulting from created impervious areas (i.e., patrol and maintenance roads) located on embankments or fill across or within drainage courses, such as Smuggler's Gulch, should be conveyed off the embankments/fill and treated or infiltrated. Runoff infiltration should not occur in natural drainage courses. Specifically, these post-construction structural BMPs (or suites of BMPs) should be designed to treat or infiltrate the amount of stormwater runoff produced by all storms up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event, with an appropriate safety factor (i.e., 2 or greater), for flow-based BMPs. The WQCP should demonstrate with clear calculations the proposed structural BMPs' compliance with the sizing requirement.
- Clearly describe and label, on the project plans, BMPs to prevent and control erosion and sedimentation from the surface of embankment and cut slopes. To the extent practicable, (re)vegetation with native plants immediately after disturbance/earth work should be implemented.
- Develop a long-term monitoring plan to ensure successful (re)vegetation efforts.
- Provide a long-term plan and schedule for the monitoring and maintenance of all structural stormwater BMPs.
- All BMPs shall be operated, inspected and maintained for the life of the project. For the first three years following completion of project construction, all structural BMPs shall be inspected, and where necessary, cleaned and repaired, at the following minimum frequencies: 1) prior to October 15<sup>th</sup> each year; 2) following the first storm event with a magnitude of 0.5 inch or greater, and, as necessary, following other significant storm events between October 15<sup>th</sup> and April 15<sup>th</sup> of each year; and 3) at the end of the wet season (April 15<sup>th</sup>). Significant storm events are those with a magnitude greater than or equal to that of the post-construction structural BMP design storm (i.e., the 85<sup>th</sup> percentile storm events), as specified above. After the first three years following completion of project construction and inspection as specified herein, the project proponent shall submit to the Executive Director for review and approval a maintenance report including the field observation data, record of cleaning and repair activities, conclusions and a recommended permanent schedule of inspection and maintenance of the BMPs implemented. The recommended permanent schedule of inspection and maintenance shall not become effective until the project proponent obtains a new consistency determination from the Commission unless the Executive Director determines that such a determination is not necessary.
- Perform the annual applications of soil stabilizer only during the dry seasons.

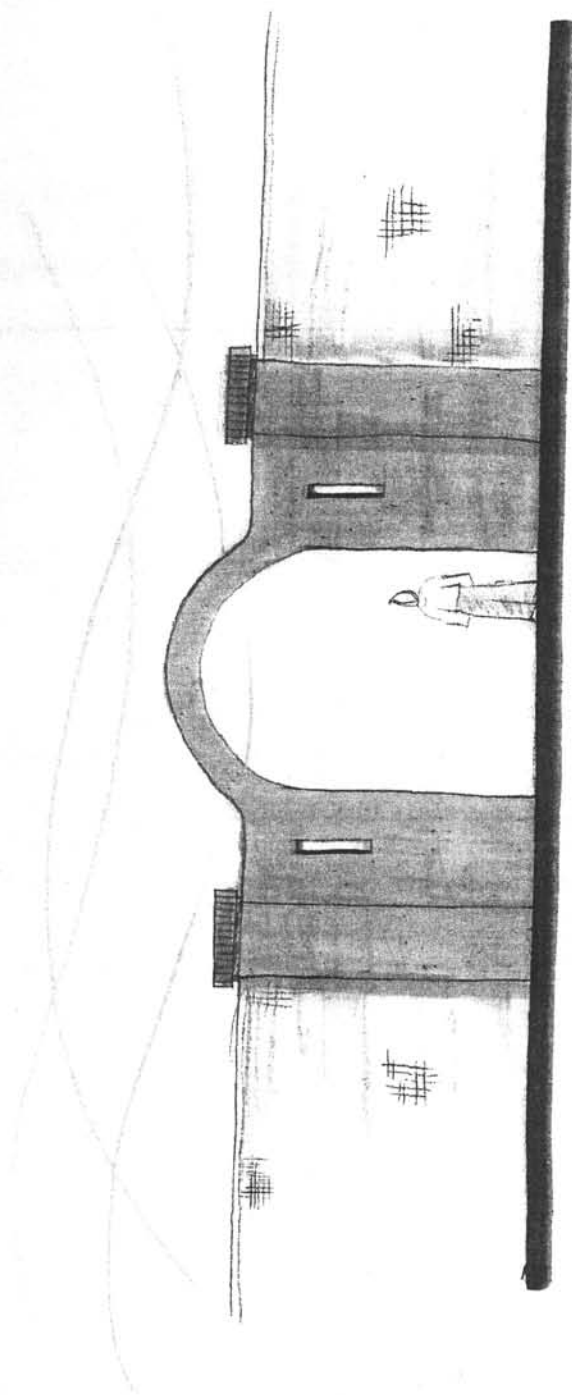


BEACH ACCESS GATE CONCEPT – ELEVATION

SCALE: 1" = 5'-0"

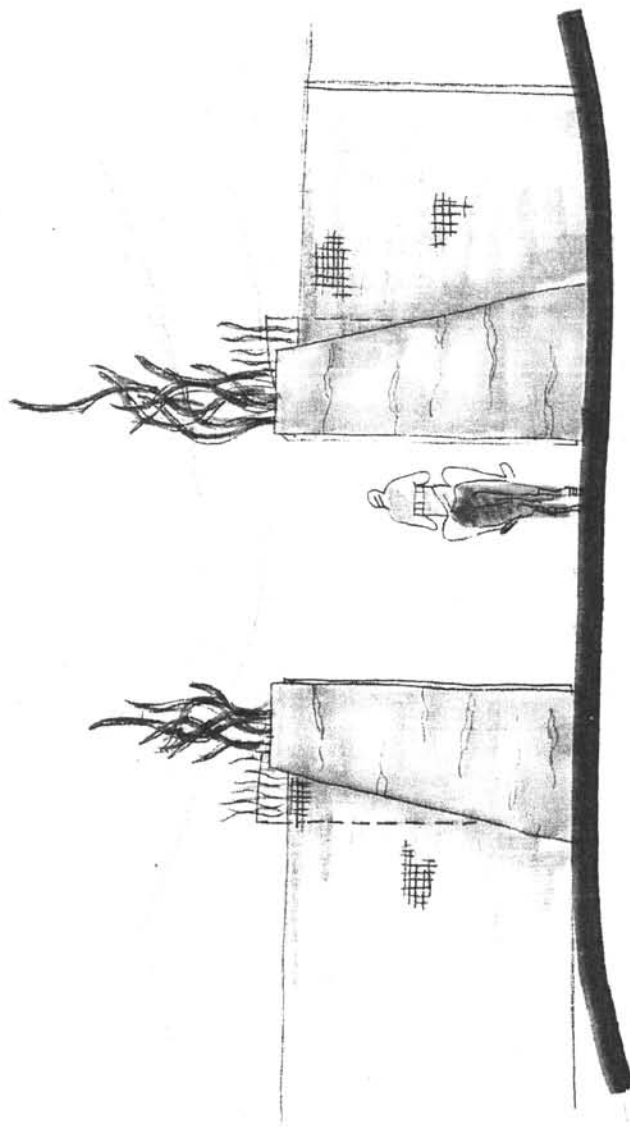
EXHIBIT NO. 27
APPLICATION NO.
CD-63-03
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BEACH ACCESS GATE CONCEPT - ELEVATION

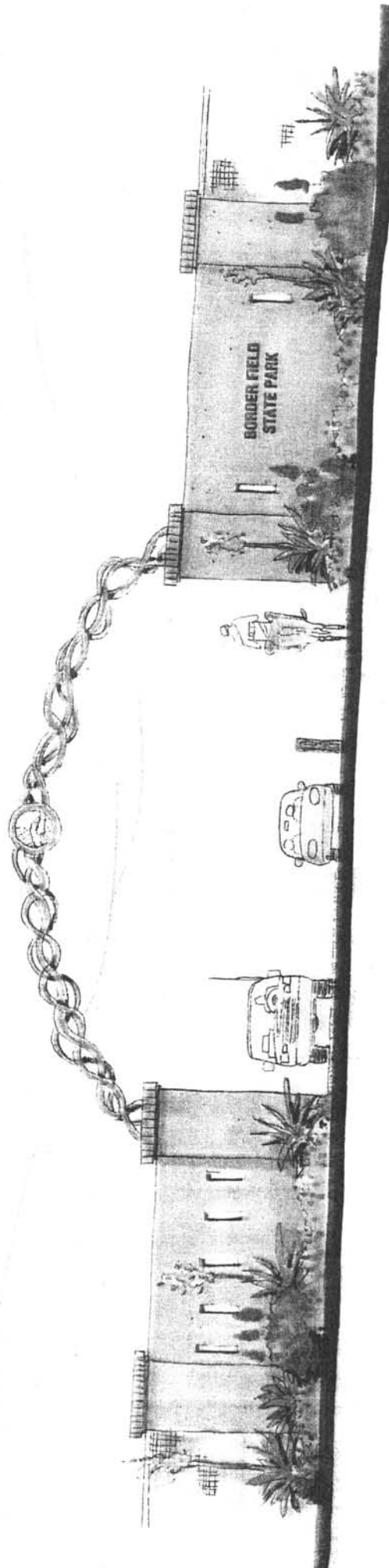
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BEACH ACCESS GATE CONCEPT – ELEVATION

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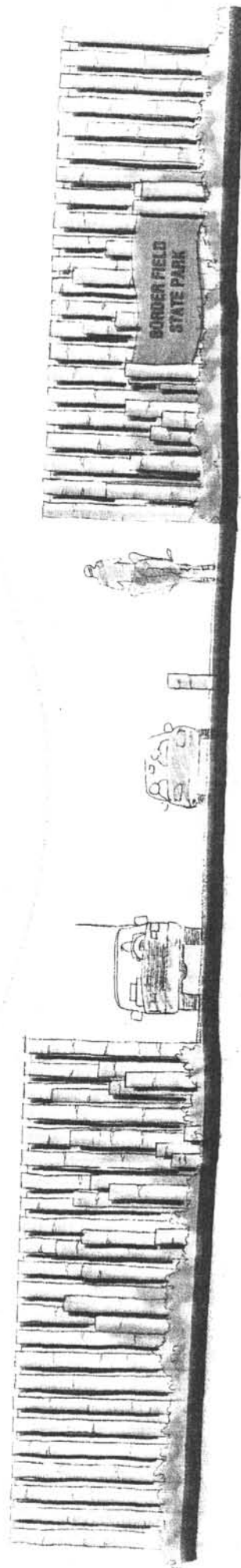
EXH. 27, p. 3



ENTRY CONCEPT - ELEVATION

SCALE: 1"=5'-0"

EXH. 27, p. 4



ENTRY CONCEPT - ELEVATION

SCALE: 1" = 5'-0"

ExH.27, p.5

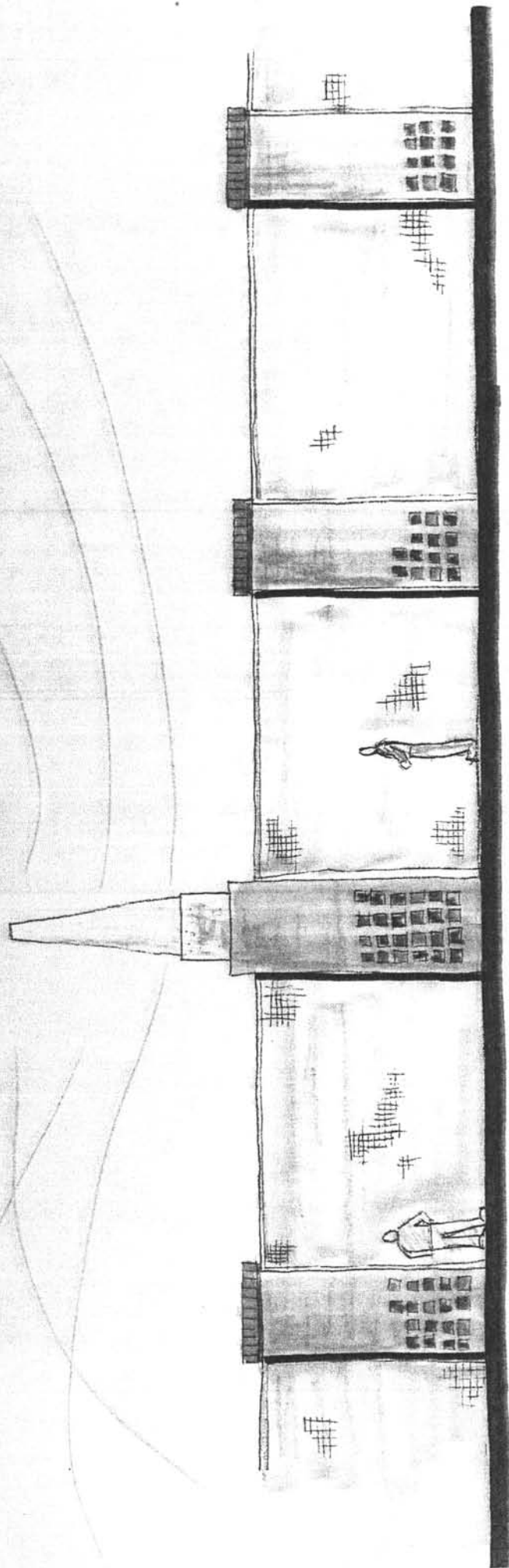




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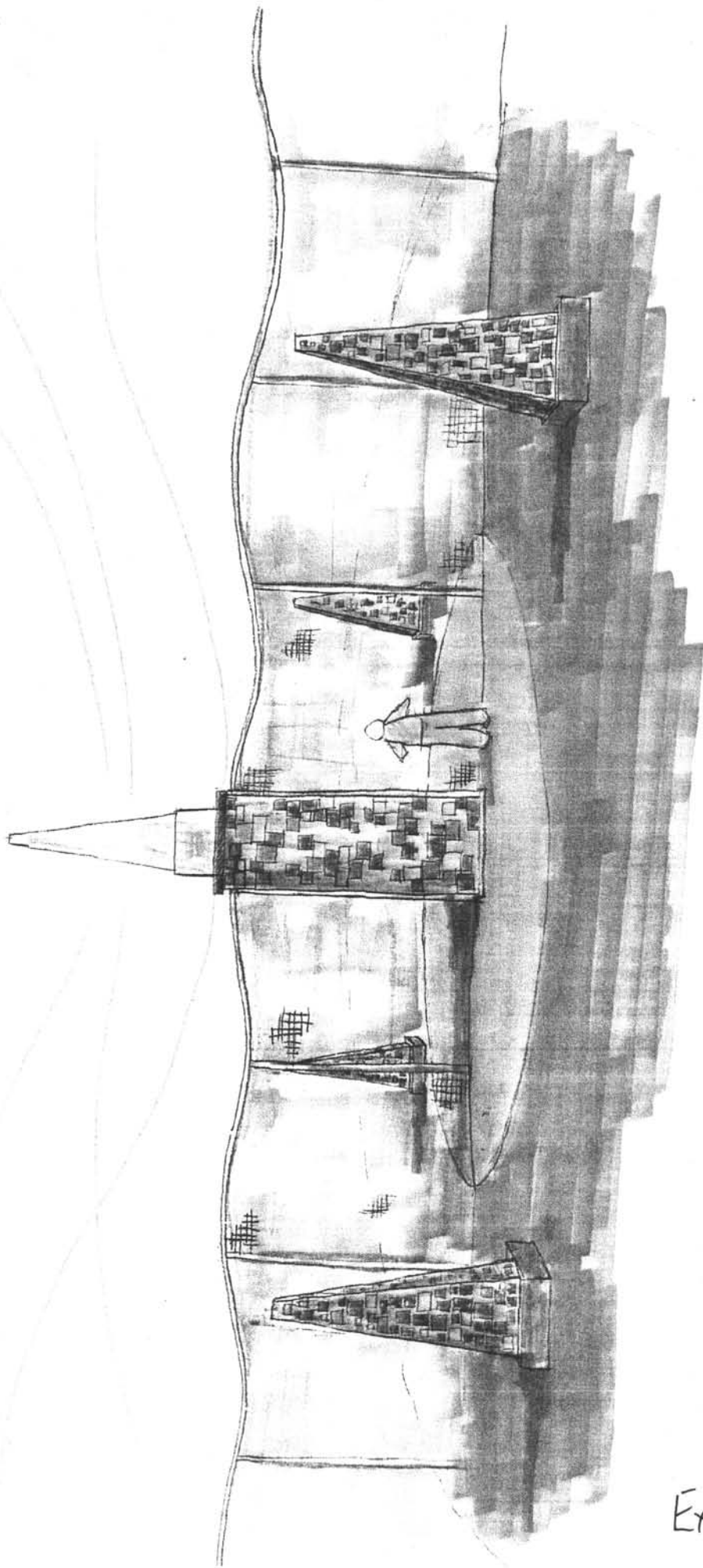
SCALE: 1" = 5'-0"

EXH. 27, p. 6



PRIMARY FENCE CONCEPT - ELEVATION

SCALE: 1" = 5'-0"



PRIMARY FENCE CONCEPT - ELEVATION

SCALE: 1" = 5'-0"

EXH. 27, p. 8

Table 3-5. Archaeological Sites in Area V

Site No.	Age	Site Type	Site Size (m <sup>2</sup> )	Previous Investigation	NRHP Eligibility Status	Investigation Conducted by GMI
W-1376	Unknown Prehistoric	Lithic Scatter	32,400	Recorded (Carrico 1976 [site form only]) (Buyse and Largent 1999)	Ineligible	Relocated
CA-SDI-11,947H	Historic	Structure	5,000	Surveyed (Higgins et al. 1994) (Buyse and Largent 1999)	Ineligible	Could Not Relocate/ Destroyed
CA-SDI-8605A	Unknown Prehistoric	Quarry	12,500	Tested (Gallegos et al. 1986; Higgins et al. 1994)	Ineligible	Could Not Relocate
CA-SDI-8595	Historic	Trash Scatter	46,000+	(Buyse and Largent 1999) Mitigated (Polan 1981); Surveyed (Cheever and Gallegos 1987)	Ineligible	Relocated
CA-SDI-8773	Historic/ Unknown Prehistoric	Lithic Scatter/ Adobe Structure	900 (mapped location)	Recorded (Campbell 1981 [site form only]) (Buyse and Largent 1999)	Ineligible	Could Not Relocate/ Destroyed
CA-SDI-8596	Unknown Prehistoric	Lithic Scatter	2,500 (mapped location)	Surveyed (Buyse and Largent 1999)	Ineligible	Could Not Relocate/ Destroyed
CA-SDI-8604	Unknown Prehistoric	Quarry	48,000	Tested (Gallegos et al. 1986; Higgins et al. 1994) (Buyse and Largent 1999)	Ineligible	Could Not Relocate



Table 3-6. Archaeological Sites Within Area VI

Site No.	Age	Site Type	Site Size (m <sup>2</sup> )	Previous Investigation	NRHP Eligibility Status <sup>1</sup>	Investigation Conducted by GMI
CA-SDI-15,039	Unknown Prehistoric	Lithic Scatter	100	(Buyse and Largent 1999)	Ineligible	Recorded
CA-SDI-15,038	Unknown Prehistoric	Lithic Scatter	2,000	(Buyse and Largent 1999)	Unknown	Recorded
CA-SDI-3627	Prehistoric (San Dieguito) Historic WWII	Lithic Scatter Historic	12,650	Recorded (Moriarty 1974 [site form only])	Potentially Eligible (unknown)	Relocated/Shovel-tested
CA-SDI-4281	Unknown Prehistoric	Habitation	22,550	Tested (Bingham 1978) (Buyse and Largent 1999)	Eligible	Relocated/Shovel-tested
CA-SDI-222	Prehistoric (La Jolla)	Camp	46,000	Tested (Bingham 1978) (Buyse and Largent 1999)	NRHP-Listed	Relocated

<sup>1</sup> Those sites for which the California SHPO or SCIC does not have an NRHP eligibility status, or that have not yet been evaluated for NRHP eligibility, have been assigned an "unknown" eligibility status.



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CALIFORNIA  
COASTAL COMMISSION

August 25, 2003

James A. Caffrey, Acting Director  
Headquarters Facilities and Engineering  
U.S. Department of Homeland Security  
Bureau of Immigration and Customs Enforcement  
425 I Street NW  
Washington, DC 20536

RE: Final EIS, San Diego Border Infrastructure System, San Diego, California

Dear Mr. Caffrey:

This letter provides California State Coastal Conservancy comments on the Final Environmental Impact Statement received in our office on July 31, 2003 on the above-referenced project prepared pursuant to the National Environmental Policy Act of 1969.

We hold that the final environmental impact statement insufficiently assesses the feasibility of achieving program objectives through the construction of a primary barrier, an alternative similarly dismissed in the DEIS and noted in our comment letter dated March 20, 2002. Your assertion in FEIS Section 2.3.1.1 that a project configuration lacking the secondary and tertiary fences cannot be made to function effectively is not supported by the discussion presented. We continue to find it untenable to assert that *any* constructed primary fence would be ineffective, particularly when the conclusion is based, in part, on the effects of the poorly conceived and poorly maintained primary fence now in place. Pursuant to NEPA Section 102 (C) (iii), our particular concern remains that to avoid the significant adverse effects of the preferred project alternative that an alternative be examined that assesses truly innovative fence designs, including ones that incorporate advanced surveillance and warning technologies within a primary barrier. The proposed action is not supported by the rigorous analysis of alternatives that is inherent to evaluations under NEPA.

The California State Coastal Conservancy is charged by Division 21, Section 31000 et seq. of the Public Resources Code of the State of California to protect, enhance, and restore the natural resources of the State's designated coastal zone and to ensure public access to its public trust beaches. As we indicated in our project scoping letter dated

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February 21, 2001 and our DEIS comment letter dated March 20, 2002, we have made the U.S./Mexico border zone an area of concentration for over twenty years, dedicating over \$19 million to acquiring land, restoring habitats and providing public access. In 2002-2003, the Coastal Conservancy, California Department of Parks and Recreation and the State Wildlife Conservation Board have authorized over \$8 million for construction of sediment control facilities at Goat Canyon to protect the wetlands of the Tijuana Estuary saltmarsh. State of California work has been accompanied by the work of local and federal public agencies charged with affecting environmental quality, including \$400 million in federal funding for wastewater treatment facilities.

Grading of coastal mesas in Area VI and the cut/fill operation at Smuggler's Gulch in Area V poses a serious threat to this work. As noted in the FEIS, the Terrace escarpment, Chesterton fine loam and Marina loamy coarse sands that constitute the soil profile here experience rapid runoff and are a severe erosion hazard. Section 4.3.4.1 indicates that "measures such as brow ditches, sedimentation traps and stilling basins, and energy dissipaters, in addition to revegetation measures, would be incorporated into the final engineering designs of cut and fill slopes such as Smuggler's Gulch, to ensure long-term stability of the slope and to control erosion and sedimentation." Many variables can affect these actions and more specific analyses are needed to assess probable impacts.

We find that the FEIS inadequately assesses the probable impacts of project alternatives to downstream coastal resources, including jurisdictional Waters of the United States, in regard to the soil loss and resulting downstream sedimentation associated with proposed large-scale topographic alterations. We also view the mitigation program developed to compensate impacts likely to be associated with the proposed action inadequately defined. The level of impact represented here reinforces our concern for a more thorough alternatives analysis to identify a project that meets project objectives without the large-scale land disturbance inherent with each of the alternatives presented.

Strikingly absent from the assessment of environmental impact is a comprehensive assessment of the values that, in combination, make the international border at the Pacific Ocean a critical heritage site for the two nations, an area referred to by both Mexican and American border communities as "Friendship Park". The Border Infrastructure System design, particularly in the westernmost sector (Area VI extending 1.4 miles inland from the Pacific Ocean) has serious consequence for, what is characterized in NEPA Section 102 (B) as the "...the unquantified environmental amenities and values..." of the community. Though NEPA requires that these amenities and values "...be given appropriate consideration in decision making along with economic and technical considerations", the FEIS does not present an acceptable design solution for "Friendship Park", but instead provides a collection of possible designs.

Border Field State Park's two oceanfront mesas, Lichty Mesa and Monument Mesa, constitute a heritage and ecological site consisting of several interrelated parts, having historic, cultural, ecological, geographical and scenic significance unparalleled on the

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U.S./Mexican border or the California Coast. An extensive array of public assets exist there including a 4000 year-old Kummeahay cultural area, an extremely rare assemblage of coastal scrub plants, and the 150-year old international monument to the treaty commemorating an end to Mexican-American enmity. While Alignment BHPO-4, identified as the Preferred Alternative for Area VI, is laudable for maintaining American access to Friendship Circle and the American side of the 150 year old monument commemorating an end to Mexican-American enmity, the actual project impact to the "...unquantified environmental amenities and values..." of this critically important coastal site at the southwesternmost corner of the United States cannot be evaluated. We consider this a serious FEIS omission.

Current trends indicate that San Diego/Tijuana will become one of the great North American centers of the 21<sup>st</sup> century, unique in its international geography and character and in its social and economic integration. The U.S. Border Infrastructure System is a highly visible and symbolic part of the fabric of the bi-national community. Where an act of the United States Congress established the necessity for the Border Infrastructure System, it is incumbent upon the agencies of the United States government to use measure and ingenuity to carry out the mandate in accord with all the laws of the United States and the State of California. Based on our review of the FEIS and its preferred project proposal, this challenging initiative has not been successfully met.

Sincerely,



Sam Schuchat  
Executive Officer

cc. Senator Diane Feinstein, United States Senate  
Senator Barbara Boxer, United States Senate  
Congresswoman Susan Davis, United States House of Representatives  
Mary Nichols, Secretary, Resources Agency, State of California  
Ruth Coleman, Acting Director, California State Parks Department  
Peter Douglass, Executive Officer, California Coastal Commission

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# California Native Plant Society

San Diego Chapter

P.O. Box 121390

San Diego, CA 92112

Mark Delaplaine  
California Coastal Commission  
45 Fremont Street, Suite 2000  
San Francisco, CA 94105-2219

September 19, 2003

Re: Border Fence Infrastructure Project

Dear Mr. Delaplaine:

Attempts by the California Native Plant Society and other non-profit environmental organizations, Federal and State agencies, and local City and County jurisdictions to minimize impacts to an HCP/NCCP preserve (MSCP) and its species have been rebuffed by INS and Army Corps of Engineer personnel in their push to build a triple border fence with a high speed road. We would ask that the Coastal Commission correct this error and require minimization of impacts to rare species by any structure that is built along the border. San Diego has developed most of its coastal mesas and many unique species are found in the first few mesas along the border. Each mesa supports a different assemblage of species that do not occur further inland. Given that the border is largely under control in this area as border crossers have moved east, there is no excuse not to do this project in a manner that minimizes impacts to sensitive species.

San Diego has undergone extensive negotiations to create a preserve system that is believed by some to protect 87 plant and animal species. Part of the reason my organization participated in the process was the belief that we could forgo the listing process for some species as they would be protected adequately by the Multiple Species Conservation Program. There are far more species needing protection than the limited number that are currently listed or examined for the habitat plan. A large number of those rare species were expected to be protected by the habitat plan that resulted from the massive planning effort. Many rare plant species that qualify for listing occur in the southern part of the county in the coastal zone and we believed they were protected by the MSCP preserve and have not tried to petition those species for listing as we would have in the absence of the habitat plan. Many of these species are now under threat due to the proposed Border Fence Infrastructure Project for the 14-mile stretch of the border from the ocean to the base of Otay Mountain. INS denies any responsibility to avoid impacts to those species if they are not currently federally listed even though they occur in preserve lands in the coastal zone. We are enclosing species evaluations developed by Craig Reiser in his web publication *Rare Plants of San Diego County* (1994) to substantiate the rarity of species although some of the information is outdated.

Our concern is that no attempt has been made to minimize impacts from the border fence infrastructure to a wide variety of rare species in the coastal zone. We had believed that INS at least intended to run the secondary fence at the base of Lichty Mesa to avoid many of the sensitive plant and archeological resources but find the final approved plan



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includes running a fence across the top of the mesa. In responses to comments concerning non-listed species INS responded, "INS is committed to its obligations under the ESA, but is not in a position to comply with the conditions set forth in the MSCP." Surveying was conducted last year with State Parks and CNPS members to document rare plant populations since the draft EIS released for the project was deficient in disclosing rare plant populations historically known from the impact area. The following discussion includes information for some of the rare species that qualify for listing.

Orcutt's dudleya (*Dudleya attenuata* ssp. *orcuttii*) has a single population in the United States on the first and second mesas along the border from the ocean. The fence infrastructure will impact this population and no mitigation is proposed. Brand's phacelia (*Phacelia stellaris*) is a small annual that has been documented on Lichty Mesa both on State Park lands and private property on Lichty Mesa. There are currently only three populations known of this species in the United States and one of those is on a sand dune area at a military base, Camp Pendleton. The fence across Lichty Mesa will impact the population. There is no discussion of the species in the Final EIS although the plant occurs on State Park lands in the Coastal Zone. Coast wooly-heads (*Nemacaulis denudata* var. *denudata*) co-occurs with the Brand's phacelia and will be impacted by the fence across Lichty Mesa. Reiser identifies the species as a potential candidate for Federal Endangered status in his 1994 analysis. Nuttall's lotus (*Lotus nuttallianus*) occurs on State Parks lands on Lichty Mesa. This is the only population of the species we know of that does not occur on soft sand immediately adjacent to the ocean. Gary Suttle is currently in the process of drafting a Federal and State listing petition for the species as all of its populations appear to be under threat of one kind or another. Reiser states, "long-term outlook for this species is bleak." No mitigation is proposed for impacts of the fence infrastructure project.

Beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*) occurs on the first two mesas along the border in from the ocean. Reiser concludes, "The San Diego County populations of Beach Goldenaster are almost extirpated." The border fence infrastructure will impact plants and it is not clear that any would remain. We have been in contact with Dr. John Semple of the University of Waterloo. He has confirmed that the subspecies is unique, of limited distribution along the coast, and restricted to San Diego County. Orcutt's bird's beak (*Cordylanthus orcuttianus*) is reported from the native grassland patch on Bunker Hill. Reiser states, "Orcutt's Bird's Beak is substantially declining within its limited U.S. range. All U.S. populations should be protected." Impacts to the species are not discussed in the Final EIS. South Coast saltscare (*Atriplex pacifica*) is known from a variety of small sites along the border (Lichty Mesa and Bunker Hill) but no mitigation is discussed for impacts to the species. The species occurs on many of the islands off the coast which is good since Reiser reports that the species is severely declining throughout its coastal range on the mainland. Shaw's agave (*Agave shawii*) occurs at Borderfield State Park and on Point Loma and has been introduced in a few coastal parks in San Diego. While the species is more common in Baja California Mexico, the fence project is proposing impacts to one of two of its only natural populations in the United States. This impact could be easily avoided if the grading and fencing at Lichty Mesa were modified or eliminated.

Baja California birdbush (*Ornithostaphylos oppositifolia*) impacts could easily be avoided or at least minimized if the cut and fill for Smuggler's Gulch were eliminated or if the soils were taken from Spooner's Mesa for the fill. Having a fence that followed the contours of the land and improving the surfacing on the switchbacks of the current roads down into Smuggler's Gulch would achieve better border protection over current levels without the impacts to the sole population of the State Listed Endangered species.

The extent of cut and fill associated with the infrastructure project is problematic for many species given the soils are highly erodible and siltation is already a problem in the estuary. Salt marsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*) is a listed species with few occurrences. It grows at the edge of salt pan where sedimentation can have drastic impacts. We are exceedingly concerned about the planning for drainage with the project especially in Smuggler's Gulch. Review of the hydrology section of the report suggests there will be sedimentation load reducing the efficacy of the drainage system yet there is insufficient excess capacity for water flow if that sedimentation occurs. Our organization is not skilled at such analysis but are concerned given that we know pieces of houses come down the drainage from Mexico and we fear massive slope failures are likely to occur given soils are highly erodible and structures in Spring Canyon already built for this project have failed in years without significant rains. The function of the estuary is dependent upon INS not contributing to the sedimentation problem yet from discussions with agencies involved with reviewing the project, it is clear that there has been insufficient design of the project.

There are a large number of additional rare plant species that we know occur or have been reported to occur in the footprint area. The Final EIS did not discuss these coastal resources as they refuse any responsibility for mitigating impacts to non-listed species even though they occur in the coastal zone many times within existing or proposed preserve areas. That list includes: Rayless ragwort (*Senecio aphanactis*), Goldenspined cereus (*Bergerocactus emoryi*), Seaside calandrinia (*Calandrinia maritima*), Lewis's evening primrose (*Camissonia lewisii*), Sea dahlia (*Coreopsis maritima*), Cliff spurge (*Euphorbia misera*), and Snake cholla (*Opuntia parryi* var. *serpentina*).

There are alternatives such as a single improved fence in areas where housing lines the Mexican side of the border or fencing that follows the contours of the land combined with improved road surfaces that would improve conditions for Border Patrol agents. We request that those alternatives be pursued so that coastal resources especially those in preserve areas are protected as much as possible. Should you have any questions about our concerns, please do not hesitate to contact our Chapter Conservation Chair at (858) 404-9366 (weed days), (619) 421-5767 (home), or by email ([cindyburrascano@cox.net](mailto:cindyburrascano@cox.net)).

Sincerely,



Cindy Burrascano  
Chapter Conservation Chair